Sounding Sovereignty: The Politics of Presence in the Bismarck Archipelago

Patrick F. Nason

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ABSTRACT

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This dissertation examines socioecological rhythms in the Bismarck Archipelago of Papua New Guinea. Drawing on a year of ethnographic fieldwork in New Ireland Province between 2015 and 2016 and archival research conducted in 2017, I describe how the movement of bodies, spirits, and substances in and out of place engenders knowledge of distant pasts, social relations in the present, and the anticipation of diverse futures. I argue that it is possible—first through local ontologies and epistemologies, and second through an engaged environmental anthropology—to identify and negotiate the compositional forces which accelerate or delay such movements. In making this argument, I analyze a critical question asked by Mandak-speaking peoples of any new arrival (*U pas mia?/From where have you come*), and develop a second, supplemental question *To whom do you owe the timing of your arrival?* as a means of "sounding" spaces like the deep sea.

In 2011, a multinational company known as Nautilus Minerals received permission from the Independent State of Papua New Guinea to commence the world's first seafloor massive sulfide (SMS) mine in the deep Bismarck Sea. SMS deposits are rich in gold, copper, and other valuable metals, and have been identified in conjunction with deepwater hydrothermal vents along tectonic faults. In published literature and public fora, Nautilus has suggested the "offshore" location of the proposed site, along with its depth, darkness, pressure, and intermittent volcanism, afford it certain "natural" advantages over terrestrial mine sites. The *Solwara 1* mine, they have argued, will cause "minimal environmental harm" and will be free of "landowner

issues." To this extent, *Solwara 1* has been envisioned by the company, its consulting scientists, and the PNG government as a way of making development sustainable.

Many people in New Ireland and its neighboring islands reject this assertion. Having experienced multiple waves of dispossession across successive generations, they are well aware that when foreign interests remove objects from their place, these objects often resist or refuse repatriation. Seabed mining not only poses a threat to sharks, tuna, and the endemic biodiversity present in the deep Bismarck Sea, but worse, it threatens the potential for social relations and self-determined futures that emerge out of such spaces. Through local meetings, legal channels, and social media, New Irelanders continue to resist the experimental nature of the mine.

Considering this resistance, along with my own primary accountability to the people who have become my relatives in New Ireland and New Hanover (Lovongai), I offer in this dissertation a way of knowing Solwara 1 through *Presence*. As I describe it, Presence is both a spatiotemporal concept and a methodology. In the first sense, it serves as the logical ground for the critical questions asked of all new arrivals (mentioned above); it is the *here* and *now* from which the *there* and *then* can be imagined. As a research methodology, Presence makes possible a rhythmic political ecology—a way of experiencing and qualifying change within spaces that have been physically or discursively alienated from the peoples to whom we are (or should be) most accountable. Overall, Presence makes possible a critical redefinition of "environment"—one which accounts for the history of nurture by which potential relations are made to emerge at certain moments, or in other words, their *nurtural history.*

This dissertation is divided into six chapters. In the first chapter, I describe the historical context of my arrival and fieldwork in the village of Tembin on New Ireland's western shore. I include this for the reader as an answer to the question, *From where have I come?* In the second

chapter, I draw on ethnographic evidence from a Mandak mortuary ceremony to describe the context and the work involved in producing a particular cultural object known as a *mumu.* While this particular mumu cannot be abstracted from the conditions of its own emergence without great consequence, my description of its production together with an appended timeline are intended to afford the reader a sense of the physical and conceptual grounds of what I am calling nurtural history. In the third chapter, I draw on theories of space, place, and knowledge from indigenous Pacific scholars and from philosopher Henri Lefebvre to formulate a rhythmic political ecology. The fourth and fifth chapters apply this approach to Deep Seabed Mining (DSM) and "Sharkcalling Culture," respectively. Drawing on archival and ethnographic research, I consider in these chapters how distant places emerge into the present through both representation (by scientists, cultural tourists, and indigenous New Irelanders) and through "sounding," or calling. In the final chapter, I consider how Solwara 1 has emerged as a social being in the Bismarck Archipelago, and how indigenous practices of sharkcalling and naming may be understood as assertions of continued sovereignty across local seas and in *biksolwara*—the big ocean.

CONTENTS

LIST OF CHARTS, GRAPHS, ILLUSTRATIONS ii

CONVENTIONS iii

ACKNOWLEDGEMENTS iv

DEDICATION xv

PREFACE: *TEMBIN* xvi

CHAPTER ONE: *A PAS MOROSU* 1

CHAPTER TWO: *NURTURAL HISTORY* 54

CHAPTER THREE: *RHYTHM* 100

CHAPTER FOUR: *DEEP SEABED MINING* 138

CHAPTER FIVE: *SHARKCALLING CULTURE* 180

CHAPTER SIX: *SOUNDING SOVEREIGNTY* 226

REFERENCES 258

APPENDIX: *THE MALANGAN MUMU* 283

LIST OF CHARTS, GRAPHS, ILLUSTRATIONS

All photographs by the author unless otherwise noted

Figure 1: Malangan from Libba Village at the 2016 New Ireland Day 38

Figure 2: The Author's House in Tembin 52

Figure 3: The Taro Bed 66

Figure 4: Conrad 69

Figure 5: Making the Mumu 73

Figure 6: The Feast held by Danny and Agatha 82

Figure 7: Tembin 98

Figure 8: Tanget 104

Figure 9: Lantain Sombui through the Heat of a Mumu 121

Figure 10: The West Coast Road 129

Figure 11: Peeling Taro with a Clamshell 136

Figure 12: Hydrothermal Vents. Photo from Beaulieu et al. 2010 156

Figure 13: Seafloor Mining Tool. Photo from Nautilus Minerals 170

Figure 14: Kosmas the Sharkcaller 188

Figure 15: Tourism Products. From PNGTPA 2006:42 192

Figure 16: Building a Sharkcalling Canoe 200

Figure 17: A Sharkcalling Canoe 216

Figure 18: Tembin 224

Figure 19: Fieldnotes 245

Figure 20: Daniel 256

CONVENTIONS

Language Choice

Throughout this dissertation, I use Mandak or Tok Pisin words when an English translation would be inaccurate or inappropriate. I include in parentheses an indication of which language I am using (M:__, TP:__, or TG:__) along with an English gloss. At times, I reverse this procedure and include the Mandak, Tok Pisin, or Tungak gloss in parentheses.

Mandak Orthography

Throughout New Ireland, most correspondence related to school, church, health, government, and commerce is conducted in Tok Pisin. Few studies of the Mandak language have been published, and few written documents exist. Spelling in this dissertation and studies in the field have benefitted greatly from the work of Robert Lee, who conducted linguistic studies in the Mandak-Malom dialect between 1976-1988. The Kontu/Tembin dialect is different, but Lee's work has nevertheless been helpful. For the benefit of readers, I diverge somewhat from Lee by including prenasalized voice stops (^{m}b ^{n}d ^{n}g) in my spelling of Mandak words such as *Mandak*, which Lee (1987) spells *Madak*.

ACKNOWLEDGEMENTS

The origin story of this dissertation stretches back at least ten years and across multiple lands, seas, and species. Looking back on this process, I am both elevated and humbled by the unfailing love, inspiration, patience, critique, and care bestowed upon me by family, friends, teachers, and colleagues. While I cannot possibly offer a full sense of this history, and apologize in advance for any omissions, several names come immediately to mind.

Throughout my life, my mother Andrea and my father Ray have inspired me to act as they do with curiosity toward everything and compassion toward everyone. By teaching me to read and love books, taking me fishing and canoeing, and entertaining my many hobbies and sports, they have inspired me to look outward while always remaining grounded in home, family, and self. As role models and resolute professionals, they have shown me that working hard to care for others is what makes us human. Their ongoing encouragement has enabled me to research and write with confidence. My sister Renee has been a constant source of inspiration in her own way. While I was still messing about in boats in South Florida, she was riding a bicycle across the continental US to raise money for a medical charity. Soon after, she became the first "Dr. Nason," winning a lifelong wager between us. Her recalcitrance toward social ills is manifest as grace, and her intelligence and care in her medical practice have saved countless lives. I hope that my work in some way measures up to hers. Thanks also to Chris Markin, my brother and partner in snow shoveling, and their sweet dog Bowie. One of my earliest memories of my sister Amy was her love of 80s music, which at that time was just "music." Hearing Duran Duran and Madonna in my boyhood years made me realize that something cool always existed around the corner, least of which were alliterative titles and what New Irelanders call *bilas* (TP: body ornamentation). Today Amy and her husband Randy are raising two kindhearted

and brilliant boys—Shane and Brady. May this dissertation live up to their high standard of authorship.

Along this journey my family has grown and merged. Shortly before my departure to Papua New Guinea in 2015, I was invited into the beautiful home of Hibbatul and Farah Omar. Our meeting began with a formal introduction, and over many cups of chai, we discussed religion, anthropology, and just enough politics to know we were on the same side. Toward the end of the evening, the topic turned toward the true reason for my visit: I had come to gain their approval to marry their daughter, Elisha. With their kindness and openness to accept me and my family as part of their own, with my family's reciprocal love, and with blessings from God, we set a date for the wedding. From our initial family meetings and through our beautiful wedding, Cyrus Omar has become a brother to me and a close interlocutor. With his own Ph.D. in computer science, he has expanded my horizons beyond anthropology. As a "chronic hiker," he has shown me that academic life can be hacked through frequent walks in the woods.

Following our wedding, and before resuming fieldwork, I fell ill with malaria. The excellent doctors, nurses, and staff at Christiana Hospital in Newark, Delaware and St. Vincent's Hospital in Erie, Pennsylvania helped rid me of those hepatic stowaways, and the kindness and care from my mom, my dad, Janet Carros, Hibbi Abu, and Ammi helped me regain the strength needed to return to New Ireland. During this time and after, I was encouraged to persevere by my friends Chris Stacey, Jasmine Anderson, Suzanne McCallan, Danny Dew, Libby, Kathleen, Michelle, Nicole, Nikhil, Jeet, Nithin, Remy, Sarah, Sheena, Raj, Alex, Susan, and too many more to name.

My travels back and forth to New Ireland and the research on which this dissertation is based have been generously funded by a Dissertation Fieldwork Grant from the Wenner-Gren

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My work in New Ireland would not be possible if not for John Aini. I first met John in 2013 during a preliminary visit to the island. Together we traveled by boat to Taskul in New Hanover to submit his nomination to be President of the Lovongai Local Level Government. He won that election by a wide margin. Having served his people through that role, he continues to fight tirelessly against illegal logging and deforestation in his island home. Throughout my fieldwork, John has been an inspiration, a mentor, a helpful critic, and a brother. As a cultural leader who has endured progressive physical and spiritual initiations, he has shown me how to be

strong, compassionate, and clever. As a trained fisheries scientist and cofounder of the marine conservation NGO *Ailan Awareness,* John has shown me how community-based conservation requires the cultivation of lasting and equitable social relations.

While in New Ireland, John's compound in the village of Kaselok became my home base. My time there was both rejuvenating and fascinating. Through meetings and events at the Ranguva Solwara Skul, I learned about mangroves, tropical fish species, plants, and malangan mortuary rites. While in Kaselok and in New Hanover, John's sister Sekunda Aini and his daughter Jasmine provided endless hospitality, instruction in Tok Pisin, and laughter. When I use the words *power* and *nurture* in the following chapters, these women come to mind. Additionally, conversations and collaborations with Martin Aini, Michael Tarere, Ambrose Kolmaris, Hagar Boskuru, Solo Aini, Maia Aini, Bernard Miller Silakau, Wilson Tonias, Goman Matas, Oswald, Valus, Paul, Similin, and John's Kaselok neighbors afforded me a better understanding of customary work, housebuilding, fishing, weaving, and the digging of wells. The house they built for Elisha and I is among the prettiest on the island. Conversations in the *rangama* (TG: men's house) with them and with Cornelius and Francis have been infinitely instructive. Additionally, Zoom, Sweety, Ratrick, and the late Pluto have all been, in their own way, generous listeners.

In Kavieng, Monica and Bruce Harris provided generous insight and kind hospitality, and various government officers and liaisons offered me information and assistance. I especially wish to thank Sean and Shannon Keane and their staff at Nusa Island Retreat, and Ang and Dietmar Amon and their staff at Lissenung Island for their hospitality, advice, and lively conversation. Discussions about diving, fishing, marine science, seabed mining, and policy with Rachel James, Patrick Kaiku, Cathy Hair, Jonathan Mesulam, Jordan Bulo, Annisah Sapul,

Angela Pennefather, Sven Frijlink, William White, Simon Viera, Helen Rosenbaum, Jeff Kinch, Dorion, Cara, and staff at the Kavieng office of Nautilus Minerals have all proven helpful in one way or another. At the New Ireland Public Library, Rosemary has been a guide and an inspiration to me. Discussions with Nick and his staff at the New Ireland Provincial Tourism Office and the staff at Live and Learn have taught me about tourism and development in New Ireland. Thank you also to the staff at NBC Radio and the diligent SIL workers who helped me forge linguistic and social connections with New Irelanders. Jason Roberts was present with me in Kavieng near the end of his fieldwork in Lovongai, and his advice and humor inspired me to rescue my project at a time of serious doubt. Mal Smith, when he was in town, offered a wealth of knowledge about PNG history, mining, tourism, and many other subjects. Helen Fong and her crew have been amazing hosts and friends and have provided more kindness than I can ever repay, including a long and exhausting road trip from Kavieng to Tembin in their Land Cruiser.

While in New Ireland, I typically found space on the back of a public truck to travel from Kavieng or Kaselok to Tembin. Thank you to the drivers and crew of both "Aydee Four" and "St. Thomas" for always making room for me and my cargo. Likewise, I wish to thank the many women who make the long trip from Tembin to the market in Kavieng for their company, language lessons, laughter, and divine song. I cannot express in words how much nurture and guidance I have received from the people of Tembin, Kontu, Lemau, Lambu, and Ugana villages, and from the Bismarck Sea and its many rhythms. In Tembin, Daniel Soka has been a generous host, a stern father, an exemplary leader, and the primary facilitator of my research. Upon my arrival, and through careful negotiations with his family and clan, he organized the initial meeting with Konderat Lukamu (Conrad), who would become my Mandak language tutor,

my closest friend, and my primary source of knowledge on mortuary rites, sea tenure, sociality, and spirituality. I think about these men each day, and hope they think of me as often.

Daniel and Conrad nurtured the *bisnis* and politics of my village-based research, and my own physical and spiritual existence was made possible by Turisen (my *kaka;* M: mother) and her daughter Joanna, my *anuk* (M: sister). Often after my language lessons, I would walk to the river for a bath and would cross paths with these women as they returned from the gardens with straw baskets full of *kaukau* (TP: sweet potatoes) and *kumu* (TP: greens). Their hard work in the gardens, in the village, at the Kavieng market, and on the reef makes possible everything that happens in Tembin, least of which was my own research.

Throughout my stay, I came to cherish my relationship with Joanna's children—now my nieces and nephews. Her firstborn son Gerard showed me how to move around the reef, kick without fins, aim a slingshot, climb a coconut tree, noodle around in muddy pits for slippery eels, avoid masalais, tell exciting stories, and care for one's siblings and cousins. At age eleven, he was already calling sharks. Gerard's sister Nouga taught me how to cut coconuts, feed pigs, shoo away scrappy dogs, light fires, carry stuff on my head, and draw mermaids in the sand. Their younger siblings Maryanne and Iban, along with their many cousins, taught me how to play string games, find the most stylish seashells for Elisha, and laugh with my whole body. Joanna's youngest twins, Celson and Celsea, afforded me endless happiness as they learned to walk and say their first words.

During my fieldwork, Joanna's brothers—Junior, Kosmas, and Gerard—became my brothers. They worked with Daniel to build a house for Elisha and I, showed me how to cut thick groves of bamboo to clear gardens, and taught me how to paddle my own canoe and call sharks. Daniel and Turisen have passed along many talents to their children: Joanna was the first

woman in New Ireland to be certified in a comprehensive computer training program. Jr. is a gifted guitarist, singer, and fishermen. Kosmas is among the best sharkcallers in Tembin, and Gerard has traveled throughout the Bismarck Archipelago in various employments. I thank them for all their patient guidance and support. Daniel's brother Blase has shown me how sharkcalling and spirituality are inseparable. In church and at sea, he is the epitome of strength and passion.

Numerous other men and women in Tembin and along the west coast enriched my experience and provided the inspiration and information out of which this dissertation has emerged: Some names I am allowed to say and others, as conditions of kinship, are inappropriate for me to speak or write. Because my initiation as a *Tangam* happened late in my fieldwork, the complexities of these "callings" have not been worked out among us, nor are they ever set in stone. At the risk of invoking the name of one of my *tambus,* I wish to thank Father Maurice, Ben, Danny, Agatha, Arnold, Robert, Solon, Joe, Leon, Thomas, Manmalai, and Graham Lali. *Sapos mi paul, bai mi baim sem blo mi.*

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At Columbia, coursework and conversations with Paige West, Audra Simpson, Elizabeth Povinelli, Nadia Abu El-Haj, Severin Fowles, Michael Taussig, Brian Boyd, Stathis Gourgouris, and Jeremy Porter have taught me to think critically about place, space, nature, and representation. Teaching assistantships with Catherine Fennell, Sarah Muir, Severin Fowles, Terence D'Altroy, and Mara Green have afforded me a better knowledge of anthropological theory and the history of the discipline. Mara's helpful comments on my Scheps lecture have allowed me to broaden my thoughts on presence and absence. My cohort of graduate students—Courtney Singleton, Marina Kaganova, Naeem Mohaiemen, Fernando Montero, Jeffrey Twu, Syantani Chatterjee, and Hamsini Sridharan—have been hugely supportive through each year of this process, as have Les Sabiston, Dakota Straub, Fern Thompsett, Daniel West, Eduardo Romero Dianderas, and Teresa Montoya. Adhann Iwashita and Amelia Moore have been my academic and personal role models, and Johanna Markkula has been a wonderful friend and a fellow sea creature. My brilliant students at Barnard and Columbia have been a reliable source of inspiration and humor and have listened patiently to countless stories about Papua New Guinea. At Columbia and elsewhere in New York, conversations with J.C. Salyer, Jenny Newell, Jacklyn Lacey, Lili Abu-Lughod, Naor Ben-Yehoyada, Maia Nuku, Eleanor Sterling, Leo Douglas, Georgina Cullman, Josh Drew, Veronica Davidov, Barbara Anderson, Tiara Naputi, Dan Taulapapa McMullin, and Cymene Howe have allowed me to think closely about how my ideas and experiences connect across disciplines. All of this coursework, conversation, and collaboration developed on land that belongs to Lenape people, and I hope in some way my work as a scholar honors their history and enduring presence.

Outside New York, discussions about the Pacific with Jerry Jacka, Jamon Halvaksz, Jessica Hardin, David Lipset, Karen Sykes, Jordan Haug, Alex Mawyer, Hokulani Aikau, Robert

Foster, Colin Filer, and many others have steered the course of this project. Though we have not personally met, Brenda and Berle Clay have helped me understand more about Mandak nurture, mortuary rites, and history.

I especially wish to thank my committee members, who read numerous drafts of this project, asked the most difficult questions, and have been a constant source of inspiration and guidance. I am likely one of the few graduate students who wishes their dissertation defense could have lasted much longer than allowed, for it offered me a chance to think and talk candidly with some of the best scholars in the world. Conversations about music and indigeneity with Kevin Fellezs have particularly influenced Chapters One and Three. Sev Fowles read an early draft of Chapters One and Two and later drafts of this project. His comments on topics of ontology, cosmology, and materiality, along with his constant encouragement, have given me confidence to pursue the notion of *nurtural history*. Audra Simpson has been wonderful throughout this whole process and has helped me think carefully about my own politics and representational practices. Likewise, Vince Diaz spent many hours reading and commenting on a final draft of this dissertation. His questions about the sea and the instrumentality of seafaring and sharkcalling have pushed my understandings of Mandak mobilities and sea tenure.

My dissertation advisor, Paige West, deserves more recognition than is possible here. I first met Paige in 2014 at the Annual Meeting of the American Anthropological Association in Montreal. She was hurrying between events with a crowd of followers, but still made time to talk with me about the anthropology program at Columbia. Through my first years at Columbia, in her *Place, Space, and Nature* course, and then through grant writing and comprehensive exams, fieldwork, and writing, she has been a constant source of guidance and support. Her excellence in critical thinking and poetic writing is beyond compare, and her compassion for

other humans and animals makes the world a better place. In New Ireland, Paige introduced me to John Aini. When our time on the island overlapped, we traveled around with John and J.C. in old trucks and outboard boats and saw what community-based conservation was all about. When Paige was not around, John and I would sit under the tree and talk about how much she has helped both of us over the years. Each time, we would reach a point in the conversation where we both teared up, and after a long silence John would always say, "she is our angel." That, I think, is the best way to put it.

Finally, I wish to thank Elisha Omar. Through the most intense years of grad school, Elisha has been there for me. She has read countless chapter drafts and made helpful comments, and has taught me to balance academic life with poetry and adventure. When I arrived in New Ireland, and then traveled to Tembin, I was immediately asked about my family and if I was married. I was overjoyed to say "I will be soon!" As months went by and communication between the village and home became more difficult, this promise kept me going. What Elisha didn't know then is that I had promised those in New Ireland that she would come live with me for a couple months. This promise was taken very seriously. Soon after, construction began on a house for us in Tembin, and *another* house for us in Kaselok. As time went on, walls went up, floors went in, and sago was woven together.

After we were married, we took a road trip along the Pacific Coast Highway. One evening, in Monterey, we looked out at the Pacific Ocean toward New Ireland. In the distance, a whale breached the horizon, and five minutes later the cool breeze carried its fishy breath ashore. I took that to be a good sign of things to come. After a lot of planning, work, and saving (mostly on her part), we booked her flights. Months later, she arrived on the island. I introduced her to my Tembin and Kaselok families and arranged the customary work necessary for her to enter

both homes. Her arrival prompted our initiation into our respective clans, and we spent many evenings under the glow of the moon trying to determine who were our *koxo*s, *kakas,* and *tambus*. We spent the days talking and laughing with Conrad and the many others who passed by our home on their way back from the gardens. The joy and memories we shared during that time have carried us both through the writing process and have made the most difficult moments worthwhile.

While so many friends, family, and colleagues have contributed to this project, I take full responsibility for any errors or omissions. *Iwukat mamaran.*

PATRICK NASON

NEW YORK, 2018

DEDICATION

During my fieldwork in New Ireland, my existence as I knew it underwent several transformations. I began as an anthropologist, was at times a *turis* (TP: tourist), and at other times, a "student of culture" (M: *salok a lare*). Finally, after nearly a year of prolonged, secretive negotiations by my hosts, and only when my wife Elisha joined me from the United States during my last two months of fieldwork, I become a *Tangam* (M: Osprey; one of two exogamous moieties in central New Ireland). I was brought into a clan (M: *bibinat*; TP: *bisnis*) called *Kantanat*; and she was brought into the *Somboi* clan and became a *Malom* (M: Eagle).

While this act of bringing inside has been a personal honor for both of us, it carries with it serious implications for my theoretical, methodological, and political orientation as a scholar. To the best of my understanding, this dissertation must do more than merely describe things seen and heard. It must do more than be "about" some phenomena in some other place, or about the way anthropologists make sense of such phenomena. Rather, it must work as an inscription (M: *malangan*) to make visible the history of its own nurture. It must take that nurtural history, contain it in the space of so many pages, and in doing so, serve as a reciprocation to those whose contributions shaped its existence as such. To say it is dedicated to Elisha and her fellow Maloms is to say it is already theirs.

PREFACE: *TEMBIN*

The word *tembin*, I am told, is derived from the word *sembin*, which in the Mandak[1] language of Papua New Guinea refers to "a place with no people; a place where everyone has gone away."

Strange, this definition, for the Tembin I know is full of people. To me, the word brings to mind two things: The first is a rural seaside village in the Bismarck Archipelago. The second is a set of memories of the way my friends and family in this village pronounce its name in spirited conversation, always emphasizing the first syllable: *TEMbin.*

I say "seaside," but Tembin is also on the side of a mountain, one of several consanguineous peaks that rose from the seabed around forty million years ago. Their story began in the late Eocene, as the subduction of the massive Pacific Plate under the smaller North Bismarck Microplate gave rise to a northwest-facing arc of volcanoes (Brown 1982; Hohnen 1978; Stewart and Sandy 1988). By the early Oligocene, the Pacific Plate had met its match in a massive slab of basaltic magma called the Ontong Java Plateau, and these *Jaulu Volcanics,* having rotated to face northeast, settled into an epochal slumber (Falvey and Pritchard 1984; Stewart and Sandy 1988).

Across so much time, they have been overlain by minor volcanic events and the slow accretion of coralline limestone. Archaeological evidence suggests human life and culture have been present here for at least thirty-five thousand years (Allen et al. 1989; Gosden and Robertson 1991; see also Kirch 1997:32). Today, what were once volcanic seamounts are referred to by locals as the singular *Niu Ailan*—a name that evokes the island's dynamic origin as well as its colonial moniker, *New Ireland.*

Shaped like an old musket, New Ireland forms the eastern edge of the Bismarck Sea. The rugged "stock" of this ancient musket lies to the southeast, while its "barrel," much narrower, aims west-northwest toward the Philippines. The circular island of Lovongai is the "bullet."

If it were possible to pick up this old musket and fire it, one's supporting hand would encircle the Mandak linguistic area. Tembin is there in that area, on the island's western shore. Should the reader desire more significant figures, the village is precisely located at 3.2105 degrees south latitude and 151.64 degrees west longitude. To the five hundred or so people of Tembin, these coordinates are largely insignificant, for they refer to nothing in particular beyond an imaginary net some long-dead white man cast over the world to make sense of its wonders.

Here is a better way of locating the place: Envision, for a moment, the waterline surrounding New Ireland as a montane cloudline. Those on the island live above this cloudline. Over time, they have arranged themselves into twenty-four distinct language groups (SIL 2004). They spend their time clearing, planting, and harvesting their gardens on the mountain's sunny peak. When necessary, they travel by car or by foot along its narrow edge from their village to one of two main towns. Most are Christian, and devote one day each week to church and a second day (typically Monday) to "community."

If the wind is just right, and if they have done right in the village, some people are able to leave the firm footing of their mountain home and fly outward like birds across the clouds. Some leave for hours, some for days, and others leave for years. When they return, if they do at all, they arrive with distinction. Having been away, and having interacted with those in the valley below and on distant peaks, they bring life back to the village in the form of knowledge. Some of this knowledge is passed quietly to their relatives (as devoted seabirds nurture their young), while other knowledge is screamed out in aquiline cries and echoes through the hills.

The journey away from the mountain is a dangerous one, but with history as their guide, those in New Ireland and in Pacific seamounts further seaward make it with confidence.

"Imagine yourself," said Malinowski, "suddenly set down surrounded by your gear, alone on a tropical beach close to a native village while the launch or dinghy that brought you sails out of sight" (Malinowski 1961:4). An adventure indeed. But now, imagine yourself about to depart such a beach by way of a borrowed native canoe. You are leaving the comfort of shore for the adventure of sea—not in a fiberglass skiff with outboard engine, but in a hollowed tree with nothing to accompany you but a drink of water, a cold piece of sweet potato, and a cut-up bleach bottle to serve as a bailer for the constant ingress of seawater. You depart, and with each clumsy stroke you pull further away from the village and into deeper water. You do not look back.

First, you pass over the shallow reef. If it is the season of *Lamat* or "dry reef" you should clear the reef without encountering the breaking waves present during the rest of the year. After the reef, you pass over a coralline wall which abruptly descends to thirty meters. On a good day in the right time of year, the water is so clear here that you can see a plateau of white sand all the way down there on the bottom. You might see a family of silvertip reef sharks resting down there in the sand. In spite of their grace, you recall a quote from Hunter S. Thompson: "Civilization ends at the waterline" he said. "Beyond that, we all enter the food chain, and not always right at the top" (H. Thompson 1988). But you pull further out.

The white sandy bottom and sleeping sharks sink out of sight, giving way to azure blue depth. Just a little further out, there is no sign of the bottom at all, just a purpleblue vastness below you and your boat.

At this point, having been on the water for thirty minutes or so, you have begun to get the feel for the canoe. You know that to move straight in this particular vessel and this

northwesterly wind requires about six strokes on the leeward (outrigger) side to every one stroke on the windward. Now, your own physiological rhythm is beginning to harmonize with that of the canoe, the wind, and the waves. If you are particularly blessed, you will be able to think a direction—*nosu*, *noes*, *nosa*, or *nogun*—and your canoe will respond by going that way, gliding like a fairy tern over the crests of the waves.

Further out, the depth of the sea no longer provides any reference of your location. But if you look to the right and trace the shoreline to the north, you will see a new point has emerged from the land behind the shallow sloping shore you saw from the beach. There it is, a steeper rise, hazy now in the morning sun. This particular point looks like the head of a dolphin or the upturned bow of your hollow canoe, with its snout (or prow) resting on the horizon and the head (or hull) rising eastward out of the sea to form the bulk of the island. Looking to the south, another such point extends outward from shore. Each of these promontories has a name, and upon sighting each new pair of them, you locate yourself in an area of sea that is distinct from all those before or beyond.

Paddling further, you are now far beyond sight of anyone on shore. Looking back toward the village, a dark green valley appears like a giant, gaping mouth, with each new point its jagged teeth. Cloud vapor conceals its depths. That valley has a name, as does the sea you now find yourself in. Paddling more yet, more and more and more, you come to an area where a certain kind of floating seaweed has gathered in long strips parallel to shore. This sea bears the name of that helpful flora. Further out—more sights, more feelings, more names.

The sharkcallers of Tembin, especially the older ones, know at least eighteen such areas by name; twenty-six if we include parallel areas on land. From the craggy ridge which separates the island lengthwise in half (M: *Lentaman*) to spaces beyond the visible horizon (M: *Dalas*), each

of these areas is a site of relations between humans, animals, ancestors, and features both wet and dry. More precisely, each area comes into being through these relations. When men paddle out to sea to catch fish with monofilament line or to call and catch pelagic sharks by hand, they not only inhabit these areas but make place emerge into consciousness through the establishment of such relations.

One area is particularly fascinating. Out there, way out there, is a sea known to sharkcallers as *Danxinxi*. "*Dan*" in Mandak refers to water, while *xinxi* (pronounced *ghinghi*) has two meanings. In the first, *xinxi* means "to glisten"— to attract attention, or that which attracts attention. The second refers to a very special kind of animal which, by virtue of its distinct pattern of bold stripes, attracts such attention. This animal is *Nautilus pompilius*; the Chambered Nautilus. Each night, these beautiful creatures rise like hungry submarines from the inky black depths of the Bismarck Sea to feed on crustaceans. With the coming day, they descend back into the darkness. By sinking, individual nautilus preserve their own internal temperatures by escaping the sun's warming rays. This daily rapture—this tolerance for exorbitant pressure and lust for the light of the moon—have enabled their clan of cephalopods to survive the same mass extinction that killed off the dinosaurs. It is no wonder Captain Nemo with his delusions of grandeur took their name for his ship.

Should nautilus fail to descend, perhaps because one or more of their rigid chambers have been punctured by their nemesis, *Carcharhinus falciformis* (the silky shark), they will overheat and die. When that happens, their soft bodies are consumed by the sea and their hollowed shells rise to the surface to spend an indefinite time bobbing in the waves. To paleontologists and collectors, the elegant shells are beautiful reminders of the connection between the deep sea and

deep, evolutionary time. To the sharkcallers of Tembin, they lend their name to the sea where they are most often found floating on the surface.

It is a long way to Danxinxi. Only the strongest of the sharkcallers have been there. Today, for a single man to make the trip in his dugout canoe would require an all-day paddle. Far from shore, these men are at the mercy of offshore winds, breaking waves, and breaching whales. Some have gone and never returned. Those who have come back are the kind of men whose names are passed along to their nephews; the kind of men who live on after their own inevitable deaths.

In the past, in large *malangan* war canoes holding ten men or more, Danxinxi could be reached faster. Today, rampant deforestation of the islands by foreign-owned logging and palm oil companies has reduced the number of massive hardwood trees required to build such vessels. The truth is, though, one need not go so far out to find a nautilus shell or catch a shark. Should a man wish to find a hollow nautilus to decorate the prow of his canoe, to give to his children as a toy, or to give his wife to sell to a tourist, he could wait till the winds of the northwest monsoon blow their floating shells to shore. Similarly, should a man wish to find a shark, he knows that silky sharks, grey reef sharks, tiger sharks, and others can be drawn in closer to shore with cunning and magic.

In New Ireland, constant physical presence or occupation of an area is not required to know that area and to maintain special, even vital connections to it. If, as I mentioned already, place is realized through social relations, then we can conceive of a prior to that emplacement—of a time or history that precedes those relations and a space or terrain out of which each relative has come. In other words, a man need not be present in Danxinxi to bring it into consciousness; he need only interact with something that is present there or has come from there to know that

place as his own. The implications of this are important: While sharkcalling is, for specific reasons, an exclusively male endeavor, men, women, and children can also know a place like Danxinxi as their own by establishing social relations with that which has come from it.

Recently, something else arrived from over the horizon. One night, as it was most nights in the village, my host family in Tembin gathered around their fire. Daniel, who would become *tamam* (M:father) to me, smoked from a red wooden pipe. His wife Mary (my *kaka*, or mother) combed one of their grandchildren's hair, and their daughter Joanna (my *anuk*, or sister) held both of her twin babies and rocked them to sleep. Her older children ran around the hamlet, in and out of the glow of the small fire, burning off what was left of their energy from the day. Joanna's elder brother, Junior, lived in a house nearby, and soon he and his wife and their children would join with the rest of the family to *tok stori* (TP: tell stories) until they all fell asleep.

As they sat there together, Joanna's eldest—age four then, and already an aspiring sharkcaller—ran into the center of the hamlet and proclaimed to everyone that there was a ship far out to sea. On this remote coast, ships are infrequent but not unheard of. Perhaps it was the passenger vessel making its bimonthly trip from Kavieng to Rabaul. Hearing his nephew's proclamation, Junior walked out to the beach and confirmed the boy's account—far out, way out, he saw the dull glow of a ship's lights. At that distance, the faint lights disappeared below the waveline, then reappeared again after a few seconds. Up and down with the swells, they seemed to be flashing a kind of signal—a message to the village of who they were and what they wanted. But it was only signals, spoken in a different language. Junior and the rest of the family turned away from sea and walked the few steps back to their homes. Joanna had put the twins to bed, the elder children soon drifted off to sleep, and the place was quiet again.

Twenty kilometers west of New Ireland and sixteen hundred meters below the surface of the sea lie sleeping another set of siblings. To geologists who have studied their forms with sophisticated sonar, they are submarine volcanoes. To biologists and ecologists, they are site of endemic and yet undiscovered biodiversity—nowhere else on earth do such organisms live. To theoreticians of such life, these environments, technically known as a "hydrothermal vent systems," may be where life itself began three and a half billion years ago and where it continues to begin today. To the sharkcallers of New Ireland, these forms, like the sharks and the shells, are inhabitants of Danxinxi. As real or potential social relations, they bring that space into consciousness; they are anchors, not only to Danxinxi and the sea in general, but to an entire cosmology and dynamic way of living.

After several rounds of exploration, capitalization, negotiations with the Independent State of Papua New Guinea, and public "awareness" campaigns throughout the Bismarck Archipelago, a multinational mining company is preparing to strip-mine an area just north of these volcanic siblings in early 2018. The "Solwara 1" project, as it has been named, is the first seafloor massive sulfide (SMS) mine in the world. Should their engagement yield the high-grade deposits of gold and copper promised to foreign investors, the project will serve as precedent for eighteen more mines along the same tectonic convergence, hundreds more throughout the Pacific, and more yet in deeply contested polar territories. By a powerful coincidence, the mining company goes by the name *Nautilus Minerals.*

[1] Mandak (or Madak) is an Austronesian language of central New Ireland. Local sources estimate the total number of speakers at 2000, spread across five dialects: two on the west coast of the island, two on the east coast of the island, and a fifth dialect spoken in the central region of the Lelet Plateau

CHAPTER ONE: *A PAS MOROSU*

After my explanation the old men very seriously urged me to tell these people who would look at the malanggans that they were not just carved, painted pieces of wood, but that I must make the people understand all the work and wealth that had gone into the making of them—the large taro crops, the many pigs, all the tsera [shell currency], the cooking for the feast, and other essentials of the rites. These, said the old men of Lesu, are the important things to remember about malanggans.

-Hortense Powdermaker, Life in Lesu (1933:318-19)

This dissertation examines socioecological rhythms in the Bismarck Archipelago of Papua New Guinea. By *socioecological rhythms* (or simply *rhythms*), I am referring to sequences of arrivals, departures, and returns through which objects (human or otherwise) become sociable, and through which knowledge of the world is produced. By *Bismarck Archipelago*, I am referring primarily (but not exclusively) to the island of New Ireland, its neighboring islands, and the Bismarck Sea.

For centuries, rhythm as an object of study has eluded the grasp of scientists, humanists, and artists. While it may be performed, experienced, and lived, rhythm resists codification, interpretation, and comparison. One thing, however, seems certain: Rhythm involves presences and absences, compressions and rarefactions; the composition of sameness and the measuring and metering of difference. Through these forces, rhythm gives rise to anticipation—a sense that what is *here* may one day be *there*, and what is *there* may one day return. With this in mind, I take rhythm to be most useful as an analytic rather than an object: it is an implement through which the past may be brought into the present and the future may be seen in advance.

In this dissertation, I utilize rhythm to tell a story about indigenous sovereignty in the Bismarck Archipelago. The most recent of a long line of challenges to this sovereignty comes in the form of a deep seabed mining (DSM) project known as *Solwara 1*. The developer of the project, Nautilus Minerals, has asserted that the "offshore location" of Solwara 1 makes it

different from terrestrial mining projects. Apparently, it will cause "minimal environmental harm" and will be free of "landowner issues" (NMNL 2008:21).

My critique of this statement is simple, and is supported by ample evidence. Not only does the company fail to account for diverse and enduring forms of indigenous marine tenure and ecosystemic interdependence, but worse, they make it seem as though these things never existed—as if there was a series of fixed biogeographic boundaries between the deep Bismarck Sea, the coastal waters of New Ireland, the land, and its peoples. While in fact boundaries do exist, they are fluid and political.

As an analytic, rhythm allows me to reveal the illusory nature of these boundaries—to show that they have been cultivated through particular human practices and representations of those practices. The rhythmic movement of bodies (human and otherwise) in and out of New Ireland, between what its peoples call *biksolwara* (TP: the big/deep sea) and *peles* (TP: place of belonging, often the village), demonstrate that sea is as much a part of life as land. As both a source and sink of social relations, the sea (and seas in particular) make life on land possible. Accordingly, changes within the deep sea or in any such deep spaces may be sensed and made sense of through local practices.

This is not merely *belief*. It can be supported through ethnographic evidence of indigenous seafaring practices, cosmologies, "traditional ecological knowledge" (TEK), and "science." However, the formalization and revelation of such knowledge creates boundaries of its own. To say definitively what seafaring practices, cosmologies, TEK, and science *are* is not only beyond the grasp of any single author, but the attempt to do so would potentially restrict or reduce the very movements through which life on land and at sea are made possible. The danger here is that representations of being and knowledge production (ontologies and epistemologies) will be

abstracted from their sites of origin; that the image will eclipse its object, and that both *biksolwara* and *peles* as the grounds of existence will be lost. As Kahnawake Mohawk scholar Audra Simpson has argued, concepts "have teeth, and teeth that bite through time" (Simpson 2014:100).

With this in mind, my goal in this dissertation is not to formalize Mandak realities. Instead, it is to create an inscription that is neither abstract (about) nor concrete (of), but by existing between these representational modes, serves as a means of knowing the world in new and diverse ways. In doing this, I am guided by my understanding of New Ireland *malangan*. Malangan, which in Mandak translates both nominally and verbally to *inscription(s),* offer New Irelanders a means of travel without occupation; and of relation without elimination. Malangan may refer to a wooden carving or more generally to any inscription which is in some way associated with malangan mortuary rites. They are not merely *from* New Ireland or *of* New Ireland (though both are true), but as the epigraph of this chapter suggests, malangan are powerful beings which have the potential to both reveal and conceal knowledge about the world. They are ontic and epistemic in nature—beings in their own right which move about the world, attain knowledge, and afford ways of knowing to others.

In order to bring my interlocutors into relation with my readers (some of whom may be the same), I present in this dissertation a kind of theoretical malangan that has emerged through a year of fieldwork in the Bismarck Archipelago and another year of reflection, dreaming, and writing about that experience. Having become familiar with it myself by now, I have given this theoretical inscription the name, *Presence.* Like all malangan, Presence offers a way of knowing one's own as well as other, deeper spaces.

Being in the Beyond

In *Imaginative Horizons* (2004), Vincent Crapanzano takes inspiration from a Navajo poem[1] and from anthropological interpretations of Navajo cosmology (Pinxten 1983) to theorize the *beyond* as an object of ontological desire. He writes:

> The frontiers and borders which we take so literally today are always more than the geopolitical lines that arbitrarily cut up our world. They are spatial *and* temporal, as "space" and "time" are understood. They are figured from within our ontologies and epistemologies. They reflect our desires for the familiar, the warmth it offers, a nest, a home, which some identify with the womb. They postulate a hinterland, an *arrière-pays,* to which we never quite arrive, for it always slips away. They resonate our fears of a beyond—of the imaginative possibilities it holds—and the hopes those possibilities inspire. [Crapanzano 2004:38]

While the "we" here ostensibly refers to a collective humanity, I make the argument in this dissertation that for my indigenous interlocutors in New Ireland, this spatiotemporal beyond is not merely a reflection of desire for the familiar. That is just the surface. Looking deeper, the beyond—be it *taim bilong tumbuna* (TP: time of the ancestors; the past), *tosu axas* (M: far seaward; biksolwara), or one's own *bel* (TP: bodily, moral interior)—*is* that womb; it *is* the space out of which the familiar emerges.

While to the capitalist, the conservationist, and the tourist, the beyond may always slip away, to the people with whom I work, it is they who have the knowledge, wisdom, and power to do the slipping away—sometimes deliberately and other times unwillingly—but always with a return in mind. The beyond *can* be accessed—it *is* accessed—through daily practices. It is accessed through gardening and gleaning, sharkcalling and sleeping, mortuary rites, church, air and sea travel, and various other forms of social *wok* (TP: work). It is accessed through something as simple as presence.

Presence, I argue, is the mechanism through which rhythmic movements become sensible as such. It is itself made intelligible through rhythm. Presence can be understood processually

as emplaced, momentary relations; as informal inquisitions between two or more beings in which questions are asked of each other's pasts and assumptions are made about each other's intentions. The beyond is made accessible through this establishment of familiarity.

While I describe this process further in Chapter Two, I want to explain here why the formulation of such an abstraction is necessary. I will do this by way of providing to the reader my own answers to two critical questions: one which is typically asked between Mandak peoples in moments of presence, and another which is supplemental to the first, and my own intervention.

The first question—*From where have you come?*—is a translation of the Mandak interrogative *U pas Mia?* To the best of my knowledge, this question concerns the materiality of composition—the stuff of which objects are fashioned to be sociable in a certain way. By "material" and "stuff," I am referring not only to physical elements but also to prior relations that in some way compose the condition of one's present disposition. Any new arrival to Tembin village, be it an anthropologist or a piece of driftwood, is asked this question of their past; it matters little whether one has come from the river for a bath or the other side of the world. Presented brusquely as it always is, *U pas mia?* prompts one to immediately explain themselves; to give something of their story. This may be done with words, or simply by exhibiting certain aspects of themselves. As such, the question may be asked of anything, regardless of form. In furnishing an answer, what is expressed is a difference on top of which all forthcoming similarity may be built. By telling where one has been, one gives their interlocutor the opportunity to presume the kinds of behaviors or actions that will contribute toward a desirable kind of transactive relationship. This exchange of one's history establishes the way in which two entities will assemble together in a composite existence.

The second question—*To whom do you attribute the timing of your arrival/departure/return?*—is my own, and concerns the temporality of composition. Together with *U pas mia?*, this question affords an understanding of what I come to refer to in Chapter Two as a *nurtural history*—a textured beyond; an agentive, multispecies spacetime out of which all beings emerge. In asking both questions of new (or returning) arrivals and listening closely to the answer, one creates through the interaction a sense of anticipation—that what is present will be present in a certain way or otherwise become absent, and that what is absent will someday return. This anticipation—a tell-tale sign of rhythm—invokes particular actions with regard to others, and more generally, an *ontology.*

To show how this works—how asking these questions and receiving their answers affords social relations as well as a deeper understanding of places physically elsewhere or discursively "remote"—I provide in the next section answers to questions I assume the reader has asked of me already[2]. I begin by answering a question of my own origin as an anthropologist doing research in contemporary Papua New Guinea, and follow this will a longer explication of the history of material and intellectual extraction in New Ireland that preceded my arrival and that has conditioned the topic, tone, and politics of this dissertation.

Where I am Coming From

A pas morosu (M: I am coming from seaward). I first arrived in New Ireland in 2013 for a two-month visit to explore options for my doctoral research. My reason for making the long trip from New York City to Papua New Guinea was inspired by a prior visit I made to the country in 2005 as part of my undergraduate studies in business with a particular focus on resort management. During that three-month visit, I fell in love with the people and stunning beauty of

the country. It was in this time that I first developed an interest in the cultural significance of sharks.

On one unforgettable scuba dive, while swimming along a coral wall, ninety feet below the surface, I was approached by a rare silver hammerhead shark. The animal swam straight at me. When it was only a meter away, it turned its peculiar head to look at me with its dark, lonely eye, and for a moment we remained locked together in the same world.

With a flick of its tail, the shark disappeared into the deep purple depths, and I was left in awe. I resolved to learn more about these unique animals and to one day return to the country where that memorable encounter took place.

For the next five years, I worked in the recreational boating industry in South Florida. Through this work, I observed a conflict between scuba divers and fishermen over the topic of sharks. Sharks are prevalent along the Florida coast, but their populations have shown a marked decline in recent decades from overfishing. Many of my own customers were scuba divers who had come from around the country to observe sharks in their natural environment. But far too often, the only sharks we saw were dead—either strung up on the back of a fishing boat or tossed in the back of a pickup truck on the way to the taxidermist. I realized then that to understand complex socioecological conflicts required something more than the finger pointing and cursing that been carrying on between each side—it required a more nuanced approach that could account for the histories, symbolisms, desires, and economics of both shark fishing and shark diving.

As the financial crisis persisted through 2009, many of my clients in the boating world sold off their assets, and I returned to school to write a Master's thesis on shark conservation in South Florida. Two years later, I had completed that study and was accepted into the Ph.D.

program in Anthropology at Columbia University. My move from sunny Florida to New York City was the shortest route back to Papua New Guinea.

At Columbia, I was introduced to questions of epistemology, ontology, indigenous sovereignty, and spatial production by the faculty who now form my advisory committee. Part of this education has involved confronting my own position as a middle-class, white, male scholar at an Ivy League university who grew up in Erie, Pennsylvania; as a person whose prior experience with indigeneity and race was limited to what one is taught in suburban American primary school. I say this not as an appeal for sympathy, but only to show where I am coming from and how this personal origin conditioned what would become my doctoral research in Papua New Guinea. But also, I include these remarks as a way of confronting preconceptions of an essential "West" which exists in opposition to the places and peoples anthropologists have studied for over a hundred years of disciplinary history. As much as Tembin village is not Port Moresby, Erie Pennsylvania is not New York.

Today, among anthropologists, it is no longer sufficient to say I am studying in Papua New Guinea because of my love of the people and the stunning diversity and beauty in the country. "Yes," I have been told, "But isn't that old-school anthropology?" My firm answer on this is *No, it isn't.*

In *Dispossession and the Environment* (2016), Paige West argues such questions emerge out of a moment of reflexivity within anthropology wherein anthropologists since the early 1970s "have been forced to grapple with the colonial legacy of the profession" (West 2016:29; see also Asad 1973 and Said 1978). While this ongoing reflexivity has made scholars think more carefully about the ways we conceive our research questions, conduct our research, and represent persons, places, and practices, it has also permitted the characterization of anthropology done in

and of Papua New Guinea (or which is otherwise based in a village) as simplistic at best, and at worst, as orientalist in the way it conceives and represents its subjects (Said 1978). West critiques this disciplinary "slotting" by demonstrating a commitment to her interlocutors that is personal as much as it is intellectual, and which adds an element of immanent responsibility to Strathernian notions of relationality. "In today's anthropology," she writes, "people's lives seem only to matter if they are assumed to teach us something about global processes and assemblages or allow us to theorize something larger than human life" (West 2016:30). Narrowing the direction of anthropological reflexivity away from a generalized (and potentially essentialized) anthropological subject and toward actual people with whom the anthropologist interacts, West insists "Papua New Guinea matters because the lives of people there matter in and of themselves" (2016:30). The act of writing and publishing anthropological texts is only a fraction of what is involved in this commitment.

As I see it, disciplinary apprehensions about doing anthropology in Papua New Guinea, while well intended, carry with them several assumptions that I aim to trouble in this dissertation. The first is that something exists called "Anthropology" which enjoys a kind of placeless existence, which emerges out of a series of movements between one's "home" and "the field," and which is itself the sole beneficiary of anthropological productions. The second is that this Anthropology, mobile as it is, has changed in the past hundred and forty years while life among Papua New Guineans has not. Third, there is an assumption that the way to resolve such apprehensions requires nothing more than a "turn" wherein the *modus operandi* of today's anthropologist (conceived as a reincarnation of the discipline's forefathers—then and now, as a white, European male) is not to grasp the native's point of view, but rather, to be grasped by it (Holbraad and Pederson 2017).

In this dissertation, I contribute to a growing number of critical voices who see this attempt at a more "radical" anthropology as itself an affront to the conditions of possibilities of diverse existence for indigenous persons (Bessire and Bond 2014; Todd 2016). By presenting in the following pages a history of material and conceptual extraction in New Ireland, I demonstrate that such an anthropology actually owes much of its existence to specific Melanesian persons, places, and practices.

A History of Extraction

I understand history in New Ireland to exist in two forms. The first is in what Mandak speakers on the island's west coast call *Lentanon*. *Lentanon* may be glossed as both "picture" and "spirit." An example of the former can be found in villages like Tembin, where on cool, clear nights, if there is enough petrol to power a small generator, a crowd of hundreds of children and adults will gather around a ten-inch television monitor to watch a DVD movie. What they encounter—be it a religious movie or a pop-culture classic—is not a living scene, but a Lentanon, or picture, of reality. The objects of attention within that scene are understood accordingly: "*Lentanon-Jesus,"* for example. Or more often, "*Lentanon-Chuck Norris."*

Lentanon also refers to spirit—something which performs social work but is not visibly social in the way that humans are. An example is the Mandak term for the Holy Spirit, *Lentanon Kaxa* (M: spirit-holy). When in Chapter Five I consider the production and deployment of documentary footage of Mandak cultural practices, it becomes clear that "picture" and "spirit" as instruments of power are in fact synonymous.

History in New Ireland also exists in living bodies, human and otherwise. While *Lentanon-New Ireland* can be accessed remotely (say, in a museum in New York, or in an academic publication about matrilineal kinship in island Melanesia), this embodied history can

only be accessed in person while present with other living bodies. While in Chapter Two I discuss the implications of this history in more detail, I mention it briefly here as a means of organizing my own presentation of New Ireland history into several periods.

Today, the majority of indigenous peoples in New Ireland hold within them a history that reaches back at least thirty-five thousand years (Allen et al. 1989; Gosden and Robertson 1991; see also Kirch 1997:32), and far more when considering that within each person is contained a history of social relations in and of the land and sea. When considering New Ireland, New Hanover, and adjacent islands as the "homeland" from which the Lapita cultural complex moved throughout the Pacific (Allen 1984), this embodied history can be encountered today in the Solomon Islands, Tonga, Fiji, further into Polynesia, and indeed throughout the Pacific diaspora. In this respect, we might think of the nurture and substance of which Pacific bodies are composed as being distantly linked to what is now called the Bismarck Archipelago. As much as the ocean is "in" Pacific peoples (Hau'ofa 1993), so too are New Ireland lands and seas.

Relatively speaking, it is only recently that this deeper, *nurtural* history been confused and at times eclipsed by a history composed of images, texts, and foreign exhibits—all of which are *about* a general New Ireland but are once-removed from specific New Ireland bodies and twice-removed from the relationships out of which each has emerged into their respective presents. Ironically, the production of this particular, Eurocentric, *Lentanon* history began with an explicit interest in indigenous bodies, and then, interest in the land itself. Today it is most clearly manifest in foreign interest in the sea and in marine resources. When I arrived to New Ireland to study local understandings of the Bismarck Sea and of the impending deep seabed mining project, I did so at a time when *Lentanon-New Ireland* was attempting finally to inhabit

the origins of the real place and, through a kind of viral reconfiguration of the temporality of social relations, effect the future of its peoples.

Late Arrivals

It was not until 1528 that the first European explorer, Don Alvaro de Saavedra Cerón of Spain, sailed north of what is now called New Ireland after a long downwind voyage across the Pacific from Mexico. Saavedra's crew on the *Florida* briefly made landfall in the Admiralty Islands at the northern edge of what is now the Bismarck Sea, but were quickly repelled with a volley of arrows from the island's native inhabitants (Wright 1939).

Over a hundred years later, in 1642, the Dutch explorer Abel Janszoon Tasman set forth to explore an area north of what was then considered *Terra Australis,* an area which at the time was referred to on world maps as *Boëach.* Historians consider Boëach to be a mistranscription of the word *Locach,* which in Marco Polo's *Travels* broadly marks the area that is now Thailand, Vietnam, Malaysia, and the islands of northwestern Indonesia (Suarez 2012). This mistranscription was rendered permanent in Mercator's 1541 global projection. On that early map, "Boëach" became "Beach," and was subtitled *provincial aurifera* (the gold-bearing province). Then, in Mercator's 1569 map, which undoubtedly guided Tasman's voyage, the narrative about this little-known area was stretched to include more detail: "Beach, the gold bearing province" became "Beach, the gold bearing province, whither few go from other countries because of the inhumanity of the people" (Van der Krogt 1993).

Perhaps it was a cold reception in these islands that led Tasman to continue with haste past New Ireland on his return voyage to Batavia (present-day Jakarta). Leaving these islands so far to leeward meant two things. First, Tasman failed to see the channel between New Ireland and New Britain, and therefore mapped these islands as a single land mass. Second, what

remains evident of his encounters with New Ireland people is that such meetings occurred far out to sea, away from the breaking reefs which surround each island of the archipelago. Featured in Tasman's journal is a detailed sketch of what is today referred to by indigenous New Irelanders as a *malangan* war canoe. In it are two bowtie-shaped timbers, and the man on the bow of the boat is blowing a raised triton shell. This is an early picture, or Lentanon, of what are today called "sharkcallers," and provides visual evidence that indigenous seafarers have for centuries inhabited offshore as well as coastal waters.

In 1761, the British explorer Philip Carteret explored the region and mapped it with more detail. Approaching closer to land and placing his ship at crew at risk of shifting tides, strong winds, and unknown peoples, Carteret identified a passage between one large island with active volcanoes and another to the north with lush green mountains. Appropriate to the time, Carteret named the island to the north *New Ireland*, and the larger one to the south *New Britain.* This navigational feat proved to European interests the existence of a large archipelagic sea north and west of these islands.

In the decades after Carteret's visit, the islands were visited by the occasional schooner and whaling vessel, each contributing to the narrative of New Ireland as they pursued their respective interests and returned to talk about them in port. While through the 1800s, the whalers followed migrating humpback and other great whales into the large sea west of New Ireland, other ships made landfall on inhabited islands with equally murderous intentions. The mid-nineteenth century marked a time when indigenous New Irelanders were either contractually recruited or illegally kidnapped into the labor trade for work in the plantations and gold fields of Queensland, Australia. "Blackbirding," as the practice was known, not only affected the men of New Ireland and the region as a whole, but women too were sold into labor, sold into marriage,

or otherwise abused, raped, and killed by European traders. With little to no presence of Dutch colonial order, and a narrative of inhumanity pervading the most authoritative maps, early European visitors to the island reveled in and profited from the sense of lawlessness created by their own predecessors.

Waypoints

When seafarers travel certain courses, and then return home, they selectively share information with others. For European captains, this information takes the form of sailing directions, but also includes several "waypoints" on land and sea. Waypoints serve as destinations, as means of confirming one's position, and as points of departure from which outward speed and course can be measured. In other words, they are footholds in a fluid ocean or on lands yet unknown.

One such waypoint used by nineteenth century Dutch, British, and then German explorers when arriving in New Ireland from the south is the volcanic mountains of present-day Rabaul. Sighting those on the horizon, one steers slightly northward to make landfall in the Duke of York islands. The island of Mioko in the Duke of Yorks was both a waypoint and a stopping place for blackbirders, whalers, and traders. In 1840, Mioko became a trading post of the German firm Godefroy and Sons, and formed a base from which copra (dried coconut) could be collected from the islands, transported elsewhere, and processed into oil. Shortly after, the German trader Hersheim set up a trading post on the island of Nusa at the northern end of New Ireland.

With each sailing trip, new waypoints were logged, new information passed along, and new geologic and cultural features added to the maps. Local trading partners were among the features identified by German trading firms. What were convenient nautical or terrestrial waypoints like Mioko and Nusa were then, as now, under the stewardship of indigenous clans.

Whereas in the early 1800s, New Ireland bodies were extracted from the land and taken abroad, by the late 1870s clan leaders became the points of contact between the littoral traders and groups living further inland. To the German firms, who by 1884 had incorporated as the *Deutsche Neuguinea Kompagnie* and begun to establish coconut plantations throughout New Ireland and New Britain, it was in this decade that the island assumed a third dimension—an interiority out of which came valuable trade objects and information.

In 1879 the German naturalist and ethnographer Otto Finsch and his wife Elizabeth Hoffman arrived to the islands. The legacy of their voyage is visible today in major metropolitan museums, as beautiful watercolor paintings of native canoes and homes, and thousands of cultural objects. The purpose of the Finsch expedition was to survey land for the German chancellor Otto von Bismarck and the banker Adolf von Hansemann. Prior to their arrival, a group of influential politicians and socialites in Germany had begun to make the argument to Bismarck for German imperialism in Africa and in the Pacific. Bismarck was initially disinterested in the idea. But soon, the campaign became public in a series of news articles which framed the eastern edge of mainland New Guinea and its outlying islands as a neglected and unprotected Dutch possession awaiting German order and improvement. The Chancellor soon agreed, and Finsch, having explored the potential of much of the area's existing trade network, became Imperial Commissioner of the newly-named *Kaiser Wilhelmsland* and the *Bismarck Archipelago*.

While Germany took administrative control of New Ireland (then called *Neu Mecklenburg*), New Britain (then *Neu Pommern*), and the surrounding islands in 1885, British presence persisted throughout the late 1800s as religious missionaries arrived in ships from Sydney and Auckland and diplomats occasionally arrived from the British protectorate in

mainland New Guinea. In Rabaul, a deep natural harbor in northeast New Britain, the Methodist George Brown set up a home base from which successive trips could be made to the less explored New Ireland. Together with a cadre of converted teachers from Samoa, Tonga, Fiji, and the Solomon Islands, Brown opened the first church on the southwest corner of New Ireland in 1876. Whereas German traders first took an interest in New Ireland bodies as trading partners, and then as laborers for plantations, Brown took an interest in indigenous bodies as sites of conversion and then as laborers for the Methodist mission.

As native lands and bodies became sites of cultivation, the occasional dispute between traders, missionaries, and New Ireland natives would sometimes turn deadly. Like his fellow expatriates, who by the late century had dedicated a substantial portion of their own lives to the region, Brown attributed this aggression not only to local intransigence, but to a legacy of labor recruitment. Though the recruitment of New Ireland labor had been banned by the Queensland government in 1884, the damage already had been done. A passage from the journal of Hugh Romilly, then Deputy Commissioner for the Western Pacific and Special Commissioner for the British in New Guinea, provides a colonial perspective of relations between New Irelanders and expatriates at the time:

> There has been very little communication between the inhabitants of New Ireland and white men. They bear the reputation of being treacherous savages, and up to the present time they have fully justified their bad character. Moreover, it cannot be said that they have profited by the little intercourse with whites which has hitherto taken place. The labour vessels have taken away some two thousand of the best men—a loss which, out of a population of at the outside fifty thousand, is felt severely. Of the goods left behind by the labour ships in exchange for labourers, the muskets become useless with rust and neglect; glass beads and trade calico soon lose their charm, and the merits of tobacco are only beginning to be appreciated, just as the supply is becoming exhausted. Then the New Irelanders find themselves in a bad way indeed: the deadly weapons on which they relied, useless; their tribe weakened by the loss of their best men; and their neighbors threatening on account of this loss. It is unlikely that they will bless the memory of the foreigners who "civilized" them: and woe betide the harmless naturalist or botanist who should pay them a visit in the interest of science! [Romilly 1886: 39-40]

Soon after his time in New Ireland, Romilly published a book about his experiences (1886). He is an interesting figure: one who arrives as an official diplomat, operates as a facilitator of trade, and writes with an eye for native culture. Historically, he figures as a point of transition from colonial interest in native New Ireland bodies as laborers to interest in natives and their land as forms of differential valuation. A closer look at one of his experiences in New Ireland reveal him to typify the kind of foreign interest that would persist for a half century after his departure.

Romilly describes an expedition he organized to Kapsu on New Ireland's northeast coast in 1883. Having borrowed a small sailing boat, a captain, and several local crew from the German trader Hersheim, Romilly departed Nusa island and sailed around the northern point of New Ireland at night to minimize exposure to diurnal southeasterly winds. After traveling forty miles down the east coast, he arrived in daylight at Kapsu Bay, where a local associate of Hersheim had promised he would find natives receptive to trade.

There, he presented gifts of shell money from Nusa to those who met him on the beach, and they immediately took him to an area inland of the beach. He was led into an area "very clean and well-kept…a hundred yards in diameter, in one corner of which was a very complicated labyrinth, which surrounded a house containing some most grotesque carvings."

> When we arrived at the temple (for lack of a better name) I was not allowed to look at it very long. Only a few old men had followed us, and by the solemn way in which they shook their heads they seemed to think that no good would result from the shrine being exposed to sacrilegious eyes. The women had previously all been driven out of the village, apparently to guard against the possibility of their seeing any of the hidden mysteries. In the temple were some six or seven hideous painted figures, between three and four feet high, and innumerable small carvings of birds and fishes; besides these, on a shelf were some half-dozen of the curious helmets, which in shape and appearance so much resemble the helmets of the ancient Greeks. More curious still to relate, almost exact facsimilies of these helmets can be seen at the present day in the museum of Honolulu. [Romilly 1886:45-46]

This visit to Kapsu was significant for several reasons. First, Romilly's establishment of relations with natives in Kapsu during this initial expedition provides a glimpse into their customary practices—namely *malangan* carvings as noted above, but also the contemporaneous practice of consumption of enemy dead and their strong seafaring presence. Following his visit to the "temple," and a successful effort on his behalf to organize "some fifteen hundred men" for the purposes of establishing a trade station, Romilly details the sudden arrival of a fleet of "twenty-five canoes, each holding from thirty to fifty men" from around the point to the North. This alone is worthy of pause: Imagine *that* coming around the corner, weaving its way through a narrow passage in the reef toward shore, and then driving onto the beach.

Second, while German traders, the Methodist missionary George Brown, and later the Catholic Missionaries of the Sacred Heart concentrated their interests on the island's leeward (west) coast, Romilly's expedition marked an early colonial presence on the northeast coast. Because of its regular exposure to southeast trade winds, powerful oceanic swells, and the dangerous reef running parallel to shore along its length, the east coast offered poor harborage for larger sailing ships. However, the relatively flat geological profile of the coast and frequent rain doubtlessly appeared conducive to the establishment of larger coconut plantations.

By 1886, the conversion of coasting schooners to complete or partial steam power enabled more frequent upwind voyages from Nusa and Kavieng around the northernmost point of New Ireland to coastal waypoints along the east coast. Eventually, when the natives at Kapsu burned down the trading post in their village and several more to the north, a steam-powered German gunboat called the *Albatross* carried out a ballistic assault on the village that left at least twenty-six more natives dead. It is believed the *malangan* carvings present in the village at the time of the punitive raid now lie in a museum in Germany [Ridges 2005:1].

By the time of the deadly *Albatross* raid, Romilly had returned to Port Moresby, then the seat of the British protectorate in New Guinea. There he finished much of his ethnographic manuscript on native customs in New Guinea, and soon after, others with respective interests in either "unimproved" land or "unknown" objects in New Ireland began to read it. It is in this exchange that Romilly's story marks an important moment in the colonial history of New Ireland. On one hand, we see in the way he writes about his dealings at Kapsu how land, once demarcated and made accessible, is abstracted as a space of cultivation and eventually settlement. On the other, we see in his account of men, women, *malangan* carvings, and canoes how the fruits of that land, when objectified and inscribed in text, are alienated from their origins. It is in his act of authoring his experiences and in subsequent readings of his experiences that the conceptual removal of persons from land prefigures a history of forced removal, resettlement, and denial of indigenous land and sea tenure.

Infrastructure and Social Structure

Here is how this happened. Romilly's account from the late 1800s provided justification for the construction of a coastal road from the port town of Kavieng that would be undertaken by the German Administrator Franz Boluminski in the early 1900s. The road became known as the Boluminski Highway, though New Irelanders today are quick to correct anyone who thinks it was the German who did the work of building it. In order to complete the massive project, Boluminski needed more local labor than he could entice with tobacco or other paltry trade goods. In 1906, he imposed a poll tax on natives, forcing them to enroll for work to earn cash (Rowley 1958). This accomplished the desired effect of relocating thousands of people from the interior of the island to work "camps" along the east coast (Küchler 2002:18-19). Physically alienated from their gardens, situated in what were formerly fishing, trading, or war outposts, and

then forced to work in terrible conditions, many men and women succumbed to infectious diseases and malnutrition (Scragg 1954).

As the road stretched further south from Kavieng, so too emerged new coconut plantations on land that had been dispossessed through relocation or some form of provisional agreement. An infrastructure of new stations emerged in east coast villages to manage copra interests, allowing successive waves of new arrivals to study native settlement patterns, customary practices, and objects.

The first wave came from Germany. With access by road to New Ireland's northeast coast, participants of the German Naval Expedition of 1907/09 collected and described artifacts only briefly mentioned in accounts by Finsch and Romilly (Friederici 1910; Kramer 1907; Kramer-Bannow 1916; Stephen 1907; Walden 1911). Others present at the time, including the missionary and naturalist Peekel (1908) and planter Parkinson (1907), collected biological and ethnological objects, all of which were eventually sent home to Germany.

The second wave came from Australia. Following the outbreak of the First World War, German New Guinea fell under Australian control. New Mecklenburg regained the name New Ireland, and the infrastructure established on the islands north end and northeast coast was appropriated by new bosses. From 1921 until 1942, Australian administration was formalized through a Mandate from the League of Nations. During this time, the Australian colonial administration operated through a system of white expatriate patrol officers (*kiaps*) and the indigenous leaders they appointed in each village (*luluais*). By exploiting these working relationships, a number of surveyors and ethnographers from Australia, the United States, and Europe gained access to villages, and then to information about native settlement patterns, mortuary customs, and *malangan* objects (Buhler 1933; Chinnery 1932; Groves 1933, 1936;

Powdermaker 1931). In return for official help, these scholars contributed the fruits of their academic labor to the administration in the form of "reports."

While it is not clear to what extent the brutal violence imposed on indigenous peoples by administrators and their police forces in mainland New Guinea occurred to the same extent in New Ireland (see Kituai 1988), what is now apparent is that these early surveys, themselves facilitated by trade infrastructure and forced relocation, contributed to a slower violence wherein New Ireland objects (human and otherwise) were gradually imagined to exist in distinction from the grounds of their existence. Functionalist accounts like that of Powdermaker (1931), itself dedicated to Malinowski, produced pictures of economic organization, often in response to a "problem" framed in advance of arrival. Groves' *Report on Field Work in New Ireland* (1933) provides a clear example of how adminstrative problems like "native education" and real problems of population decline from introduced death and disease inform the method of the study and what eventually gets said. What was ostensibly needed, according to this wave of scholars, was a full idea of "the native social unit itself, the village with its family, clan and kinship groupings, with its specialized crafts and institutions, its traditional lore and culture…a scientific study of the native in his own present-day cultural and social background" (Groves 1933:326).

Among this wave of ethnographers who benefitted from the east coast road and the kiap-luluai relationship, *malangan* became an elusive intellectual treasure. Powdermaker, perhaps with a confidence gained from her own admitted disdain for white expatriates, concludes *malangan* rites "might be termed a hygienic method for handling certain psychological tensions caused by death" (Powdermaker 1931:43). With Groves, however, there are the beginnings of a sense of sublimity (or perhaps futility) with regard to *malangan*. To him, *malangan* was nearly

dead because he encountered few who still practiced it, and when he did, it seemed altogether elusive to understanding. Loss of land and lives during the German administration come to justify anthropological reports of lost culture, and simultaneously, Groves frames *malangan* as a total social fact of which only a small part is ever visible, and only will be for a short time longer.

> Beyond the fact that the malangan is of definitely religious significance (primitively religious, that is), and that, from the point of view of culture-contact, it will have disappeared very soon in Fisoa [village] under the influence of the Christian mission teachings, no attempt will be made here to give an outline of the numerous aspects of this important element of the culture. To give such an outline would be to sketch the whole of the culture of Fisoa, for every other item is in one way or another bound up with, dependent upon, preparation for our outcome of this one dominating cultural influence of malangan. [Groves 1933:340]

Throughout this wave, more and more *malangan* were being removed from New Ireland and sent away to Australia, America, and Europe. A second-order *New Ireland* was emerging overseas by way of "primitive art." Through engagement by surrealist sculptors, collectors, and critics, *malangan* became associated with the northern part of New Ireland, while the distinctive *Uli* figures were associated with the central and southern parts of the island. Through expatriate movements through colonial infrastructure and the art objects which emerged out of these movements, the island as a whole was divided into three cultural areas which persist today in ethnological, art-historical, and tourist discourses.

In 1942, the Second World War brought Japanese occupation to New Ireland. Along with New Britain to the south, New Hanover and Emirau to the northwest, and the Solomon Islands to the east, New Ireland was a strategic asset for naval and airborne forces. Expatriate missionaries and administrators were executed or evicted, and any natives suspected of colluding with Allied interests were killed. The interior of the island with its dense forests and caves became a refuge for those hiding from the brutal Japanese forces. Intense fighting took place

near Kavieng and Rabaul, and the wreckage of Allied and Axis planes and ships remain visible today in the gin-clear water. Along with this wreckage, stories emerged among New Irelanders about caches of Japanese gold hidden in the hills or sunk offshore.

Following the war, a reorganized League of Nations (what became the United Nations) mandated Australia regain control of the Territory of Papua and New Guinea, which now stretched from the offshore islands in the Bismarck Archipelago to a border in the west drawn to bisect the New Guinea mainland. During the period following the war through independence of the State of Papua New Guinea in 1975, another wave of interest traveled down the Boluminski Highway and set up camp along east coast villages and in the chain of islands just offshore. This interest was both anthropological and mineralogical. While anthropologists began to investigate how native settlement patterns, social organization, mortuary practices, and worldviews operated within certain contexts and adapted to contextual change (Billings 1969; Billings and Peterson 1967; Bodrogi 1971; Clay 1975; Heinze 1969; P. Lewis 1969), mining prospectors from Australia traveled down the same road in search of gold and copper.

Beyond the Littoral Goldmine

The anticipation of independence and nationhood in the late 1960s gave rise to questions about national economic sustainability. While the extraction of labor, copra, and indigenous artifacts and knowledge brought little direct income to people of Papua and New Guinea, the development of the massive Panguna Copper Mine on the island of Bougainville in 1972 demonstrated that a separation of metals from the ground could jumpstart a far more diverse and independent economy.

While small-scale mining had been conducted in the territory to some extent since the late 1800s (Demaitre 1936; Healy 1967; Newbury 1975; Nelson 1976; Gerritsen and Macintyre

1986), Panguna was a game-changer in economic, environmental, social, and political terms. The largest open-pit copper mine at the time, Panguna provided nearly half of export revenue to the nation at the time of independence and afforded far more income to foreign shareholders (Filer and Imbun 2009). Initial success in Bougainville encouraged a national development policy at independence that was provisionally based on mining, with the aspiration that mining revenues would nurture other forms of national development.

However, the discovery of gold at Lihir, Misima, and Porgera and the commencement of the Ok Tedi mine in 1982 in mainland Papua New Guinea foreshadowed a longer, more complex relationship between the nation and extractive industry. Likewise, it situated "the nation" awkwardly in between customary landowners and foreign companies as both a shareholder and a regulator. On one hand, the Land Titles Commission Act of 1962 established that all land not appropriated by colonial authorities (some 97% of the total land mass) is legally held by customary "landowners." (Wardlow 2010:183). While this term is itself problematic[3] (Filer and Jackson 1989; Jorgensen 2004), its collective definition and relevance as a political category in questions of ownership and compensation are unique among postcolonial nations.

On the other hand, by renegotiating deals made prior to independence, the emergent government obtained minority equity in existing and forthcoming mining projects. The prospect of filling government coffers with dividends paid by expatriate corporations operating on what was most often leased customary land led to the emergence of a complicated question that persists today: "How could the national government capture the maximum possible share of the nation's mineral wealth in the form of mineral revenues without alienating foreign investors to an extent which would deter their future investment in the production of more mineral wealth and more mineral revenues?" (Filer and Imbun 2009:79).

While this issue persisted among government policymakers and foreign companies, serious social and ecological issues developed at the mine sites, causing delays, periodic stoppages, and in Bougainville, complete shutdown. Environmental degradation at Panguna led to civil unrest, the forced closure of that mine in 1989, and a decade of deadly conflict (May and Spriggs 1990; Denoon 2000). To date, the mine has still not reopened. At the Ok Tedi mine in Western Province, the continued release of toxic mine tailings into the Fly River and disruption of fisheries, gardens, and ways of life led to local resistance and a drawn out process of litigation between the nation and the Australian mining giant BHP (Banks and Ballard 1997; Jackson 1982; Kirsch 2002; 2006). The massive "indigenous gold rush" that took place at Mount Kare in the late 1980s resulted in dramatic territorial and social reconfigurations (Biersack 1999; Clark 1993; Wardlow 2004), and continued expatriate developments at Frieda and Crater Mountain may soon do the same. At Porgera, early alluvial mining efforts were overtaken by a massive gold mine in 1990 which has resulted in the movement of tens of thousands of people into the area. Pervasive issues of economic inequality, ecological damage, and gender-based violence and vulnerability persist (Banks 1999; Golub 2007; Jacka 2015; Wardlow 2006; 2010).

As Jamon Halvaksz has argued, "expectations of current and future mining projects are as much about the creative engagement of humans with physically transformed landscapes as they are about and cultural experiences" (Halvaksz 2008:21). At Porgera, Misima, Hidden Valley, and other major mines, questions about closure, rehabilitation, and relations with the landscape amid large-scale transformations and persisting toxicities remain unanswered (Bainton and Macintyre 2016; Botta et al. 2014; Halvaksz 2008; Jackson 2002). While such projects have also prompted resilient and creative responses (Bainton 2010; Golub 2014; Filer and Macintyre 2006; Jacka 2015), the dramatic socioecological change they bring is indisputable. The depletion of

limited resources, the sheer movement of so many people and so much capital into these areas, and the lingering presence of toxic tailings and inequalities have eroded any promise that the early revenues of mining could sustain the nation indefinitely.

Coastal mines, by virtue of their proximity to the sea, have offered companies (and by financial extension, the PNG government) an apparent "natural" solution of at least one problem inherent to mining: the disposal of toxic mine tailings. What the mining industry calls Submarine Tailings Disposal (STD) was first practiced at Misima and is now practiced at the Lihir and Simberi gold mines in New Ireland Province and the Ramu Nickel mine in Madang. In this controversial process, a combination of ground rock, mud, chemical reagents, heavy metals, and sewage from the mine's workers is pumped down a pipe onto a steep undersea slope. From there it is supposed to disappear into deeper water (MPI 2015), but its effects on coastal marine life are well documented (Hughes et al. 2015). Another "natural" advantage of being close to the sea is that mine workers need not resettle the area, but can in most cases move in and out of the island by plane or local boat. In Lihir and Simberi, for example, white (mostly Australian) mining engineers and executives and many PNG nationals operate on fly-in/fly-out contracts. Others from surrounding islands can travel between mining camps and home by small outboard boats. Likewise, provisions can be sourced from elsewhere, relieving at least some pressure on local labor, soils, and seas, and providing a means of income to businesspeople with access to transportation, storage, and refrigeration.

While island mines seem to offer these natural solutions to some of the problems of terrestrial extraction, they are in another sense no different than mainland projects. Extraction, be it the New Guinea Highlands or Islands, prompts the emergence of new or returning forms, be it the legendary subterranean python at Mount Kare (Biersack 1999), the toxic tides often

reported at Lihir, or the wealth manifest in cash, pigs, beer, diesel trucks, guns, and mobile phones at mining areas. Likewise, extraction prompts feelings to emerge—of expectation, unpredictability, or perhaps premonitions that land itself is coming to an end (Jacka 2015). Regardless of whether the mine takes place in the mountains, valleys, coast, or in the deep sea; the anthropology of mining in PNG has shown that *mining takes place*—it removes things from here, sends them there, and brings forth new forms, feelings, fortunes, and foreclosures. Situated at the epicenter of this movement, the mine takes the very place it has carved out for itself.

Deep Seabed Mining (DSM) is conceptually different only because it shifts this epicenter into an area which appears blue on most maps—an area which has been discursively deplaced and depopulated through corporate, governmental, and scientific interventions. Politically, DSM is very different than terrestrial mining, and even coastal mining, for it affords mining companies, governments, and scientists a way of making "development" sustainable. While I discuss this further in Chapter Four, it is sufficient to say here that DSM has emerged off the shores of New Ireland at a particular historical moment when national and provincial governments are in search of new sources of revenue and everyone is aware of terrestrial mining's history of environmental and human violence.

Beyond the Cultural Goldmine

Through several successive turns, New Ireland as it exists in the anthropological record today has become a place where unique cultural objects, ways of knowing, and ways of being in the world are seen to exist independent of the material conditions of their own possibility. What today are visible as the aforementioned assumptions about Melanesianist and/or village-based anthropology as something outdated, and the ways in which anthropologists have reacted to these assumptions by isolating anthropological productions from the objects on which they are built,

have together created a situation wherein the figure on which such productions are based has been alienated from its own ground. To the extent that anthropological ideas about objects, epistemology, or ontology exist in relation to real things in the world, it is the removal of concepts and materials from New Ireland, and the inherent difficulties of returning such items to specific New Ireland peoples in appropriate ways, that has created an empirical chasm between New Ireland realities and the forces of nurture which make them possible. In simpler terms, what has transpired through a history of colonial presence as well as postcolonial ways of understanding that presence is a situation in which writing anthropologically about forms in New Ireland—be they human, nonhuman, geologic, cultural, religious, conceptual, or otherwise—only serves to further distance those forms from that which nurtured their present existence and may one day bring forth their return.

By the late 1960s, much of New Ireland had been surveyed by Australian patrols, including all of the west coast villages between the Duke of York islands and Kavieng. Still, however, access to east coast villages by way of the physical and social infrastructure proved more conducive to long-term ethnographic study. Language-based "societies" such as "the Mandak" could be identified, studied, analyzed, and added to the anthropological record. Within these social worlds could then be identified difference with regard to how natives think, organize their lives, and so forth[4]. The turn here away from positivist descriptions toward parallel reckonings is an important one, for it forms in part the unspoken grounds of what initially becomes known as a "New Melanesian Ethnography" (Josephides 1991), something which itself is eventually coopted by the "Ontological Turn" in anthropology (Kohn 2015; Holbraad and Pederson 2017).

In New Ireland, this turn is perhaps best seen in the early work of Brenda Clay. Arriving in 1970, Clay and her archaeologist husband chose to live in the village of Pinikindu on the central east coast of New Ireland. This choice was in part because Pinikindu, unlike villages in northern New Ireland, was determined to display a "traditional settlement pattern" that predated "Western contact." But also, their choice reflected the typical way in which anthropological field sites in Papua New Guinea emerge in light of numerous factors beyond one's control (Clay 1977:xiii).

Clay's primary interest was in the cultural symbols "through which the Mandak define and articulate interpersonal and intergroup relationships" (Clay 1977:1). Whereas earlier functionalists produced observations of actual objects and interactions and valued them in terms of one "problem" or another, Clay's focus at the dawn of PNG independence was on cultural meanings as they were produced and communicated among her Mandak interlocutors.

In her introduction, Clay attributes her understanding of symbols to a reading of Roy Wagner's *Habu* (1972). Particularly relevant to Clay is the following passage from Wagner (1972:5):

> Nontautologous meaning can only be produced through the innovative extension of signifiers into metaphors, that is, the formation of symbols whose contrast with the element signified is supplemented by a relation of similarity, or analogy, with that element. Thus although lexical signification is characterized by an arbitrary relationship between signifier and signified, metaphorical signification involves a nonarbitrary and determinate relationship between signifier and signified. The key to this difference is the fact of relationship itself; a metaphor brings the element signified into relation with the system of meanings in a culture, whereas lexical signification merely registers its conventions of labeling. A lexical "coding" signifies an isolated element, but a metaphor signifies a relation. [Clay 1977:2, my emphasis]

Insofar as the process of signification and of the communication of symbols happens within a certain "world," abstract and arbitrary concepts come to bear a relationship of similarity to the objects they signify; and then, it is against that primary sameness that they come into relation

with other such abstractions. What this allows is an explanation of other cultural worlds (such as that of "the Mandak") that are no less real even though they are once-removed from the perceptions on which they are owe their existence. Clay explains it like this:

> A cultural symbol is neither a superficial signification nor an artificial embellishment of "reality." Metaphorization is not a cultural process whereby a neutral world is organized for communicative purposes, for both the elements of symbolic constructions and the resulting metaphoric meaning are phenomena of cultural perceptions. Thus no contrast exists between the "symbolic" and the "real," but only manifestations of different cultural worlds. When we say a gesture is "symbolic," we often imply that the act is somehow a counterfeit of reality; that it is merely representative of something more significant. It is difficult to comprehend the realities of other people's symbols because in cross-cultural perspective we always perceive "their" world through our own and thus we explicitly or implicitly contrast the two, granting a "truth" to our own perceptions and attributing artificiality to theirs. To define a reality as "only" a cultural perception does not in any way denigrate it but simply acknowledges the source, creativity, and complexity of its meaning. [Clay 1977:2]

What is emerging here is not simply ethnography based on one's experience (as with Romilly), but rather, a conversation among anthropologists about how culture may be written in such a way that does not inscribe hierarchical value onto the cultural perceptions of others. Cultures, as Wagner (1975) later argues, may be "inventions," but to symbolic anthropologists like he and Clay, this does not imply they are any less real than what they presumably reflect. Clay clarifies this (while also exemplifying it) by operationalizing a semiotic vocabulary: *symbol* as "the anthropologist's analytic term which interpret and objectivity another culture's symbolizations"; *symbolizations* as "people's expressions of their shared metaphors;" and *form* and *expression* as "synonymous terms indicating the actual communication of a symbolization—the words, gestures, and signs which convey symbolic meaning" (Clay 1977:3).

The final element of this schema is *context*. For Clay, as for Wagner, context refers to "the immediate environment of a symbolic form or expression, to the gestures, ritual apparatus, spatial requirements, and so forth which are necessary for people to recognize the context" (Clay

1977:3). Adding another verbal metaphor to an already-complicated mix, she suggests these contexts "contain" diverse symbolic expressions—relationships of signification that may only be recognizable as such in particular contexts. Here, in this idea of a containing environment, is where I think the principle problem emerges.

In order to say anything at all about Mandak symbolizations—that is, in order to give them a name and inscribe them in text—Clay must impose a degree of stability on what becomes a Mandak "world." In order to further elaborate what she sees as a pattern of four "primary" symbols (*nurture, maternal nurture, paternal substance,* and *affinal nurture*) she must first make a statement like this: "Although certainly the Mandak have changed in many ways since precontact days, I suggest that the major distinctions and contrasts which structure their symbolizations have not changed in any radical direction within their known past" (Clay 1977:4). With regard to her own analysis, this bounding of a particular world allows the reader to learn something about The Mandak. But when this boundedness itself is placed in a wider context—that is, in the context of anthropology itself—something far more important is lost. This idea of loss can be quantified with a description of material dispossession.

While the Clays lived in Pinikindu in the late 1960s, they often made the trip several kilometers up the Boluminski Highway to share the company of Philip Lewis of the Field Museum in Chicago. Lewis and his wife had lived in the village of Lesu (where Powdermaker had lived) from 1953 to 1954 while completing fieldwork for his dissertation and had returned in 1969 and 1970 to complete further studies on *malangan.* For Lewis, the "problem" was to be found in prior anthropological accounts of *malangan,* each of which he argued contributed to a myopic view of what he saw as a more general New Ireland culture.

Having worked at the Field Museum, Lewis had access to the largest collection of New Ireland art in the United States—"some 2700 pieces"—a number rivaled only by German museums. By his own account, nearly 10,000 pieces had been extracted from New Ireland and existed abroad in 1969 (Lewis 1969:11). With access to so many pieces at once, it is no surprise Lewis attempted to identify some general principles among so many overlapping motifs. And yet, he learned an important lesson from the earlier work of those in the German Naval Expedition and the later wave that occurred under Australian administration. Rather than attempt to pinpoint specific subject matter to specific cultural areas, Lewis expanded the entire context of all the art in the collection and gave it the name *New Ireland*. Having created this stable context and placed his catalogue of formerly dispossessed items back into it, he was then able to ask "what New Irelanders think of their art" so that larger conclusions could be drawn about "the process by which art forms are transmitted through time and space" (Lewis 1969:9). Subject matter, while important, was to Lewis not as important as symbolic emergence, and he endeavored to determine how New Ireland Art emerged into a larger world.

What was lost in this ethnographic turn away from subject matter and toward context? Initially, I think, nothing. What they rejected in favor of a description of meaning-making was the stuff earlier anthropologists focused on perhaps too much and could never fully make sense of. Lewis, like Clay, exhibits some restraint in privileging abstractions over the phenomenological aspects of something like *malangan.* I say restraint because what he does not talk more about are subject like this:

> men, real and supernatural, in juxtaposition with animals, such as birds, snakes, fish, and with plant forms. Its subject matter is psychologically interesting, showing genitalia transformed into fish and snakes, and with hermaphroditic figures from central New Ireland [Uli]. It is a fantastic art which has been called 'surrealistic.' [Lewis 1969:12]

When the contributions of his and Clay's symbolic anthropology are read elsewhere, and a *Lentanon*-New Ireland comes to exist in Europe and the Americas, the epistemic turning away from this subject matter is ossified into loss. More precisely, what is lost is the connection these matters have to a *real environment* that is *more real* than their symbolic context by virtue of it being the same environment out of which the lives of real people emerge.

While later ethnographers working in Melanesia have identified issues with the ability of this symbolic approach to consider powerful structural changes associated with colonialism, capitalism, and globalization (Carrier 1992; Gewertz and Errington 1991; Foster 1995; Martin 2013; Robbins 2004; Sykes 1996; Thomas 1991), others have drawn on Lewis's and Clay's theoretical orientation and ethnographic material to think carefully about cultural understandings shared among anthropologists.

In her early work in the highlands of PNG, Marilyn Strathern (1988) confronted anthropological presuppositions about the domination of women (and of nature) by men in Papua New Guinea. At the time, continental feminist theory had made its way into ethnographic study in PNG and elsewhere, bringing with it persistent ideas about gender, society, and history. As ideas of 'male,' 'female,' and their respective roles with regard to social life and the production of history were deployed and challenged in the interpretations of empirical phenomena, they inscribed upon those realities a decidedly Western set of oppositions which, Strathern argued, were not necessarily plausible nor valuable to Papua New Guineans. Through these cross-cultural interpretations, a kind of heuristic sleight of hand took place in which the capacities of particular differences became understandable as part of a greater struggle within society. Such capacities, seen in person, became intelligible not as capacities but as representative of a struggle between categorically-opposed forms of difference. As this happened, anthropology imposed

limits on itself: How could emergent ethnographic phenomena be made intelligible across multiple worlds—both "in the field" and "at home"—if ways of knowing and being in such worlds were fundamentally different?

For Strathern, the key to solving "the problem of women" in PNG was the conceptualization of gender in a way that was plausible to the subjects of ethnographic inquiry *and* to the anthropologist's home audience. In *The Gender of The Gift* (1988), she defines gender as "those categorizations of persons, artifacts, events, sequences, and so on, which draw upon sexual imagery—upon the ways in which the distinctiveness of male and female characteristics make concrete people's ideas about the nature of social relationships" (Strathern 1988:ix). "Taken simply to be 'about' men and women," she continues, "such categorizations have often appeared tautologous. Indeed, their inventive possibilities cannot be appreciated until attention is paid to the way in which relationships are construed through them" (Strathern 1988:x). Taken as observable or conceivable forms, categorizations succumb to cross-cultural or political variations in meaning and interpretation—what "male" or "female" is, means, or looks like in one society may differ in another. Ultimately, Strathern argues, a focus on these categorizations fails to account for the many ways relations are conceived, perceived, and made to engender specific, creative ends, or otherwise, to reify specific modes of domination.

Strathern's conceptualization of social action and of ontological forms as the objectifications of that action is without doubt a masterpiece in anthropological thought. But what often goes unrecognized is that *The Gender of the Gift* was in part nurtured by the work of Brenda Clay, who theorized *nurture* as "the focal symbol of Mandak social distinctions"; as "that which nourishes, sustains, and supports the development of someone or something." Nurture "encompasses the giving and receiving of anything which contributes to growth and continuation

of the person and social unit" (Clay 1977:28) and "incorporates the 'similarities' within which the differentiating symbols exist and against which they are expressed" (Clay 1977:30). Here, I think, the relationships Clay established with Mandak-speaking peoples in Pinikindu, and the relationships those interlocutors had with their own objects are put in danger when her ideas about Mandak ideas about nurture are set into text—when concepts that only existed as such in a specific and subjective context become the data of anthropology and are sharpened over time. When Strathern and Wagner's work is later read by the anthropological grandchildren of mid-Century ethnographers of New Ireland, the ties between subject matter and the land itself become the sacrificial victims of conceptualization. Interestingly, this happens through the very mechanism by which symbolizations are expressed, witnessed, and then inscribed in text.

Here is how it works: As the context within which analysis is made possible is expanded beyond the Mandak world to include a singular world of representation (itself inhabited by anthropologists and their subjects), all the symbolizations that have been said to be contained within worlds- otherwise are rendered similar. They are incorporated, or let's say *consumed,* by something which for Clay was only ever meant to serve as provisional context, such as "Mandak." As this happens, the relationships between original signifiers and that which they signify (which in New Ireland to this day have never been made accessible to anthropologists) become empty semiotic placeholders. While in fact they are the grounds of several generations of knowledge production, as well as the expressions of an infinitely specific prior, their imbrication in a world within a world renders them inert "subject matter"—something only old-school anthropologists would study. In the recent quest by ontological theorists to understand what contemporary anthropology is and what it could be, the very stuff out of which lives and relations are formed have been relegated to the disciplinary closet.

An example of this is found recent conversations about the "ontological turn" in anthropology, which as Holbraad and Pederson (2017) argue emerges from a cross-reading of the "New Melanesian Anthropology" (especially Wagner and Strathern), and ethnographies of Amazonia (especially Viveiros de Castro). In an effort to challenge the preconceptions about life and society which lead anthropological analyses into recurring questions, proponents of this approach suggest anthropologists "turn "native" concepts back onto ourselves. Through close readings of a select few anthropological canons, Holbraad and Pederson arrive at a question that not only hollows out the primary relations on which symbolic analyses are built (real acts of nurture; real acts of consumption, mimesis, and so forth), but aims toward the "post-relational." They ask "how the concept of the relation itself might be inflected by the concept of the individual in such a way, crucially, that it ceases to be about 'social relations'" (Holbraad and Pederson 2017:252-253).

With leaps like this, it is no surprise that the ontological turn has invoked suspicion among indigenous critical thinkers and those who think about indigeneity.

The problem, I suggest, comes back to the assumption of arbitrariness with regard to the foundational lexical relationship out of which metaphorical relationships are then built. While "nurture" is one such relationship, consider for now a simpler relationship featured on many of *malangan*—a "shark." On many carvings collected from New Ireland, *and still being made in New Ireland today*, there appears what seems to be a shark. Often, the shark is eating a leg of a human. Having abandoned in the mid-twentieth century any attempt to definitively say what sharks mean to New Irelanders, or who a particular shark is, anthropologists and art historians turned their attention to the context in which the curious motif was made. What Wagner might call the "lexical significance" of the shark was unavailable, and so semiotically-inclined

anthropologists treated it as if it were arbitrary. What provided more traction was the metaphorical relationships that were said to be no less real than the elusive relationship between the motif itself and the term in which it was (or was not) spoken of. In their quest for functional "fit," and then in their abandonment of that quest in favor of the analysis of meaningful abstractions, true meaning was glossed over as if it never existed.

As of yet, few anthropologists have seriously accounted for the fact that in each and every *malangan,* what might appear as shark (or some other motif) almost certainly has a *proper name*, corresponds to an enduring and particular history of land and sea tenure, and is responsible in part for the way things exist today. But because this erasure of real relationships is hidden within dense disciplinary prose, it is not always visible as dispossession. In one recent analysis, the mutability of specific relationships and the power with which anthropologists are able to shift contexts allows for a portrayal of *malangan* not as a relic held over from the past, but as an anticolonial intervention. Susanne Küchler's *Malanggan: Art, Memory, and Sacrifice* (2002)—an entire book about *malangan*—suggests that *malangan* as an art form are also a form of social resilience accomplished through the making and recollection of memories. "Let us assume," Küchler writes,

> that malanggan was not a remnant left over from an old and dying tradition, but a new intervention, a brilliant feat of ingenuity that rapidly proved successful in the combat against loss and sorrow [from colonial relocations and mass deaths]. Where once growth and renewal could be ensured only by the snatching of the skins and the taking of the names of enemies, somehow malanggan could achieve the same end through 'technical' means that quickly resonated with new contexts and emerging social relations. [Küchler 2002:17]

Having spent significant time talking to elders in northern New Ireland, Küchler provides a poetic and detailed account of *malangan*. However, while laudable in its proclamation of indigenous ingenuity, the way in which she addresses *malangan* as anticolonial is built upon a

focus on context reinvigorated with the functionalism of former days. An important question must be asked of such a comprehensive volume: How can it be made useful to those who contributed to its production?

Figure 1: Malangan from Libba Village at the 2016 New Ireland Day

The Malangan's Refusal

As it turns out, after all these years of collection, preservation, exhibition, and reflection, it is the *malangan* themselves who reject the label "art." During one memorable moment of my own fieldwork, I attempted a kind of repatriation of images of *malangan.* Sitting on the verandah of my bungalow in Tembin village, I pulled an iPad from the recesses of my backpack and showed it to my language tutor, host, and a number of others who had gathered around. Prior to my arrival in New Ireland, I had loaded multiple images of *malangan* onto the iPad—most of which were obtained from the archives of the American Museum of Natural History in

New York. When I began to swipe through the images, some people casually moved away, eventually drifting off to other tasks in the village. I noted their disinterest but continued on, oblivious to what was happening.

After a while, only my language tutor and my host remained. They too seemed aloof, and seldom looked directly at the screen. Eventually I put away the tablet, and we carried on talking about *malangan* in a more abstract way.

In retrospect, what I mistook for disinterest was more likely avoidance. As we looked through the images, I was more interested in individual motifs while my mentors seemed more concerned with the origin of each carving. Some, they said, were from northern New Ireland, others probably from Tabar Island, and some they connected to central New Ireland where we lived. That nobody knew for sure was not merely an epistemic problem, but a far more dangerous issue.

Malangan out of context—that is, either *Lentanon-malangan* or carvings and weavings that have been taken abroad and stored in books and museums—are "dangerous." In one sense, they are dangerous because they may not have experienced the local ritual treatment necessary to render them dead. Seeing them—laying eyes on them—in a time and space detached from the original context in which they were produced can bring all kinds of trouble to oneself and one's clan. In another sense, *malangan* stored in museums, ostensibly for their preservation, become stateless refugees, detached from their land and sea. In glass boxes or in locked cases, they "cannot breathe" (Aini 2016 *pers. comm*.)

In Chapter Two, I address the idea of inspiration in more detail. But for now, it suffices to say that objects that were produced by particular clans and are therefore tied to particular lands and seas resist repatriation to a generalized "New Ireland." My error in the field was that I

attempted to introduce them casually to a set of witnesses without any proper protocol, and without any knowledge of where they had originated, as if they were merely "art." That information—their provenance—was largely lost when they were taken during the colonial period from certain villages that became glossed as a general "New Ireland" or perhaps "northern New Ireland."

This danger can be extended to anything taken from villages in New Ireland, for *malangan* are not only carvings, but inscriptions which take multiple forms. This is not a revelation I had while talking amongst anthropologists, but something I learned from my own attempts to understand what kind of production to make that would correspond to local knowledge about the ocean at a time when new modes of extractive industry lay waiting on the horizon. People in New Ireland know that what goes away in the hands of traders, blackbirders, soldiers, scholars, and mining companies often does not come back in the same form, and so today, after a hundred years of colonial rule and over 40,000 years of critical thought, they are cautious about what they share. For there is now a double danger that a *Lentanon* history will come to replace a history of real people *while at the same time* extractive industry will strip the conditions of possibility of their existence, self-determination, and sovereignty.

Perhaps it is no surprise, then, that when I first arrived in Tembin and began to talk to my host family about the kind of research I planned to conduct, I was confronted with a moment of refusal. Though I had been to that village several years before, I had come back. For locals, this presented a problem. While the people of Tembin host the occasional tourist, no one ever returns a second time. They see what they want to see and then return home. Very quickly, news of my return spread through the place, and with that, rumors of what I wanted to do. I was asked by my hosts in the village "what I wanted to get while here" and "what I wanted to take home." It took

a while for me to explain that I was neither tourist nor industrialist—that I wanted to live and work with people there to better understand their relationship with the sea and with sharks, and their understandings of what seabed mining is and what it might mean for them.

One night during that first week in the village, my host Daniel brought me together with his immediate family to talk about my project. Sitting around the fire, he and his wife said they were happy to have me in their place, but that my presence had already caused them some trouble. There was a suspicion among others, they said, that I wanted to learn about sharkcalling so I could write a book or a documentary about it. Some even thought I wanted to learn local *kastom* so I could take the place of Daniel as *maimai* (cultural leader). This suspicion presented a problem for Daniel and Mary as a family and for each of their respective clans.

Where had this suspicion come from? Were people here on the west coast always so apprehensive about foreigners? I asked and received a direct answer: Over the past two decades, they told me, people like me had come to the village to hear stories about sharks and sharkcalling. They have made films and written books. They have taken that knowledge back to "overseas countries" and made money from selling it. Where, my hosts wondered, was their cut of the revenue from these projects? What had they gained from it?

Just recently, they told me, they had hosted a group "from France" who had stayed at the guesthouse for over a month as they filmed with their cameras. The group promised those in the village royalties when the film was completed and sold. But no one had seen any money since. They knew they would see none of it, because few tourists ever return to Tembin. People within Daniel's clan were upset that they had not received anything, as were those in his wife's clan. Had Daniel kept the money and not showed them? Jealousy stirred, and longstanding relations

were strained. A *laxabus* (M: white man) like me had come, knowledge had been given and taken away, and nothing but turmoil and envy stood in its place.

With this enduring history of physical, intellectual, and representational dispossession, those in Tembin had every reason to be suspicious of my intentions. And so, when Daniel and his family brought me into their group that evening, they told me they would support my work, "as long as it was with them only and they could control it." I was told explicitly that my project "should not involve the community."

Upon hearing this, I first fell into brief period of despondency which included a return trip to my "home base" in the village of Kaselok near Kavieng. When I returned to Tembin several weeks later, I was greeted by Daniel and his family, first, as always, with *U pas mia?,* and then with questions of "what I wanted to take home." This was not asked sarcastically, but with genuine interest in how they could be better hosts and collaborators. Then and now, I took this as a clear statement that insofar as my studies in Tembin were to continue at all, they were expected to be productive and not merely critical; they were to be representational, but in a way that "was the truth." Foremost, they would be carefully coordinated bv Daniel and his clan.

At first, this seemed to be a major imposition. But the more I spent time talking with people in the village, attending various mortuary rites, and weekly church, the more I realized that production may itself be a means of representation—a critical intervention that does more to improve the lot of one's relatives than analysis alone can accomplish.

This is not particular to Tembin or to New Ireland. In her landmark book *Decolonizing Methodologies* (2012), Linda Tuhiwai Smith argues that description and deconstruction of Western scholarship on/about indigenous peoples are not enough to solve lingering problems of colonialism, racism, destruction, and dispossession in the Pacific. "Taking apart the story,

revealing underlying texts, and giving voice to things that are often known intuitively does not help people to improve their current conditions. It provides words, perhaps, an insight that explains certain experiences—but it does not prevent someone from dying" (Tuhiwai-Smith 2012:3). Writing with due urgency, Smith suggests that "sheer physical survival may seem more pressing" than "questions of imperialism and the effects of colonization." (Tuhiwai-Smith 2012:4).

With this firmly in mind, I resolved together with my hosts to produce an anthropological inscription that is not an ethnography in the traditional sense of the word, but which is informed by ethnographic research, by a sense of New Ireland's recent colonial past and far longer history, by personal interactions, and overall, by the idea that what is at stake in an engaged anthropology is not only one's own existence as a scholar, or that of the discipline, but moreso, the existence of the particular peoples whom we draw into our inquiries and who draw us into theirs.

Precaution

As a non-indigenous scholar, I proceed in this production with several measures of precaution. First, I am careful not to reproduce the orientalist tone of early Melanesianists when representing the lives or lifeways of my hosts/colleagues/family/interlocutors. Part of this involves avoiding essentialisms (including "Melanesia" itself), and another part involves precaution with regard to what might generally be called romanticism, and includes notions of harmony, nobility, or nowadays, ecological sustainability. One challenge I grapple with throughout this dissertation is writing of physical and spiritual beauty as I have encountered it in New Ireland while not making claims that what is *there* is somehow more perfect or simple or beautiful that what lies around the corner on a busy New York street. Full disclosure: there are many times I believe that to be true! But the danger in such representations is that one creates a

differential of value between one's own environs and something far afield. Indeed, this devaluation of seemingly distant sites is one of the logics on which past and present imperialist dispossessions are grounded (Luxemburg 1913; N. Smith 2008; West 2016).

Second, I proceed with an initial acknowledgement of change: that people and politics are not as they were back then. After all, the "back then" which is accessible to anthropology has most often been filtered through a colonial lens, and most often has misconceptions about race and history embedded in it. I therefore write with the assumption that there is and never has been a mutually ratified baseline from which one may measure social or ecological change.

A third aspect of precaution as I see it concerns the afterlife of anthropological representations, or what happens to data when it is formalized into text, imagery, or audio. Today in New Ireland, there is a kind of sociocultural data mining that occurs in which mining corporations, governments, tourist outfits, or others seek out prior descriptions of "culture" in order to repurpose them for their own ends. In the case of Solwara 1, Nautilus Minerals is interested in Mandak realities (especially sharkcalling) as a means of performing *corporate social responsibility*. To write anything in this politico-epistemological climate is to not only risk a misreading of what one has said, but also its appropriation. When that appropriation is done by a mining company, or expressed in the context of a land court, the stakes can be extremely high. Not only representations of life, but actual lives may be extracted from their own ground.

If, as my reading of West (2005, 2006; 2012; 2016) suggests, an ethnographic anthropology is nothing if it is not engaged; and involves a personal commitment as much as an intellectual one, then what is truly at stake with threats of appropriation is not only my own ability to continue to express something about my experience of life and death in New Ireland to

an audience unfamiliar with the place, but also the very lives of New Irelanders. During my time in the village, and especially in my last moments before returning home to complete my degree, I was told explicitly by those elders who took charge of my project:

> You must do a good job so that you get a promotion! You must take what you have learned here in Tembin and tell the truth, so that your boss-meri [TP: boss-woman, i.e. dissertation advisor] will be happy and will give you a promotion.

As much as this ability to be promoted is acknowledged to be possible within a particular context, be that "environmental anthropology," "indigenous studies," "Pacific studies" or some other readership, part of fulfilling that admonition involves writing in a way that is productive within such conversations so that promotion can occur. To the extent I write as a *Tangam* of the *Kantanat* clan (a perspective which I take very seriously, even while not fully understanding it), what I achieve in the academy will eventually come back to people in Tembin (both *Malom* and *Tangam*). But also, any mistake I make here will bring trouble to all of us.

Where my own responsibility and exercise of precaution becomes most critical is in my understanding that for very real processes described earlier, the risk involved in this anthropological production is different for my interlocutors in New Ireland than it is for me. My risk, should I write in such a way that is unfavorable among anthropologists with whom I wish to build productive relations, is that I will fail to be considered a good contemporary anthropologist, and will fail to get the promotion. Should that happen, it would mean a failure to reciprocate the nurture I received while in New Ireland—not only in the form of a dissertation or book, but as money and notoriety that successful productions of this nature may earn. That risk, I think, is bearable for both my interlocutors and me: to them it might be seen as a failed or not yet realized return on investment. To me, it is still possible to pursue other directions within or outside the academy.

However, what is far worse than a failed or mediocre dissertation is one which contributes to certain conversations among anthropologists, but in doing so, fails to acknowledge, draw attention to, and proactively reciprocate the substance and nurture without which it would not exist. With any inscription, be it a mortuary *malangan* or an anthropological one, there is a danger that the inscription itself becomes detached from the grounds of its own production—that the object, in emerging as an object, refuses to answer the question *U pas mia?* with an adequate account of its origin.

Today, many such productions haunt New Ireland. Dozens of unpublished dissertations, unreadable texts, and foreign exhibitions of New Ireland art and culture linger on the horizon like spirits of the unfinished dead (M: *virua*). As mentioned earlier, discussions of *malangan* mortuary objects and rituals form the majority of these ungrounded representations. Without question, people in New Ireland know this material is out there. But people outside of New Ireland know nothing of the substance and nurture that brought each of these delicate carvings or intricate weavings into existence. The question of provenance, should it exist at all, may index a set of coordinates on a map, but it rarely invokes the impassioned and coordinated labor, the patient waiting, and the mastery required to bring such objects into the world.

What results is a kind of primary dispossession of the land that may or may not foreshadow its actual dispossession. Concealed within objects, and extricated from the place through colonial collections and/or anthropological abstractions, the land itself—as the ground of lives, relations, and representations, and therefore, as a social actor deserving attention, kinship, and care—is too easily lost. Inasmuch as the work of grounding remains concealed within objects like *malangan,* and such inscriptions remain ensconced within spatially or discursively bounded contexts (be it Anthropology, Art, or something else), it becomes difficult to articulate

changes that are actually occurring in New Ireland today as *violent.* In other words, when New Ireland objects—be they animate or not—have always already been conceptually detached from the land, it is more difficult to recognize moments of episodic destruction, dispossession, or foreclosure for what they are.

Today, New Irelanders face new threats in the form of seabed mining, industrial fishing operations, and agroforestry initiatives that include logging, rubber planting, and oil palm. In the latter case, colonial dispossessions of land for coconuts on the northeast coast of New Ireland and elsewhere in the country foreground more recent large-scale monoculture (Nelson et al. 2014). In the case of seabed mining, colonial identification of New Ireland peoples with particular areas of land, and *not* sea, was formalized in international agreements detailed further in Chapter Four. In spite of the potential benefits that such large-scale developments may bring, they are also inevitably destructive to forms of life. And due to the relative mobility and ephemerality of the extractive corporations, the question *U pas mia?* often goes unanswered. Ships remain far out to sea, investors remain in foreign boardrooms, and the national and provincial governments fails to intervene in the best interest of their people, for they too have interest in the company's success.

It is with this in mind that I formulate a second, supplemental question to *U pas mia?* which both serves as a means of sounding deep spaces for untold forces and alluding to the instrumentality involved in sharkcalling without formalizing it in possessable terms. This question—*To whom do you attribute the timing of your arrival/departure/return?*—is intended as a means of attunement toward rhythmic forces, regardless of if or in what form these forces come to shore.

Chapter Plan

In Chapter Two, I formulate what I call *nurtural history*. By examining a particular phenomenon I encountered while in New Ireland during a mortuary ceremony, I argue that a formalist analysis—one that looks merely to the subject matter and/or context of things—fails to value the historical "road" of care and modulation out of which such things have come. This chapter may be read as a critique of the concept of "environment" as the grounds of conservation efforts by showing that forms of life and difference are only one index of an environment's viability. What must be accounted for are the forces which engender that difference, and which in doing so engender social relations between persons, places, and things. Here I draw especially on Melanesianist anthropology and my experiences with Mandak peoples to show that what appears at the surface is merely that—a surface impression which conceals a deeper space before and within. In revealing this dimensionality of sociable objects, I show how bodies in New Ireland are made sociable in a number of ways: at a comfortable distance, intimately, through an act of inhabitation, and/or by consumption. Such actions may result in what may be conceived as an epistemic death—a "sending away" of difference—and/or a corporeal or bodily death.

Having outlined this way of knowing the nurtural history of emergent objects, I present in Chapter Three a way of knowing the forces that invigorate such objects. This I envision as a rhythmic political ecology which is informed by indigenous Pacific theorizations about space, place, history, and the nature of sociality. The goal here is to further develop the set of critical questions asked of all arrivals—questions concerned not with *Lentanon,* but rather, with the way bodies are brought into social existence through revelation at specific times. I begin with an account of a personal experience in which rhythm became interesting to me and show why it is appropriate with regard to the elements of precaution outlined already. I then look to Lefebvre's

early and later work on space and placement to show that what is real in everyday life is that which can be experienced viscerally—not by viewing society from afar, but by placing one's own body within Presence. When in a later work Lefebvre returns analytic attention to the topic of rhythm (2004), he does so with radical transformation in mind. But his book on rhythm remains in the periphery of contemporary social theory. The reason, I argue, can be found in indigenous Pacific theorizations of decolonial spatial practice, all of which emphasize the corporeal risk and commitment to a perpetual future necessary of any productive gesture, philosophical or practical. Nowadays, the rhythmanalyst envisioned by Lefebvre cannot simply retreat "to the balcony" when historical, political, and ecological circumstances present definite or indefinite risks to their ontological survival.

In Chapters Four and Five, I direct the reader's attention toward one particular presence—Solwara 1—in an attempt to describe how it has become part of social life in Tembin village. It is one thing to experience an expression (and its nurtural history) by being present to an object, but it is quite another thing to represent that in text. The difficulty here concerns *place.* While I may describe Tembin in all manner of speech, the site of Solwara 1's emergence is far remote to the reader and (at present) to myself. How do we write of places-beyond without reproducing the spatial exoticism (Diaz 2016; Kahn 2011) or temporal "chronotopes" (Bakhtin 1981) that scholars in and of the Pacific (Diaz 2016; Kahn 2011; Lipset 2011; Stasch 2011; West 2016) have shown to foreclose upon the possibilities of social and/or corporeal life and political and/or representational sovereignty?

The answer, I argue, requires a bit of magic. It requires we fly outward from the present like those in Tembin fly outward in dreams and in daily life, and in doing so, assemble together motifs from the sociohistorical assemblages we meet along the way. It requires we lend a

material dimension to the heteroglossia (Bakhtin 1981) which emerge in our attempts at representation, follow these "spectral" roads outward, and examine their points of reconnection.

Chapter Four is focused primarily on a cautionary text by a prominent deep-sea biologist warning against the "inevitable" onslaught of deep seabed mining. The point of reconnection in this text is a hydrothermal vent site (or "field") far on the other side of the Pacific which today is known as "The Garden of Eden." The "discovery" of this site in 1977 marks a connection between discourses of "life" and "resources," both of which can be traced back to their own respective histories, and both of which frame the ways in which the sea is talked about today in terms of a generalized human heritage and a particular kind of human future.

Chapter Five is focused on what has come to be called "Sharkcalling Culture" by those in New Ireland. Through this expression can be read discursive histories of tourism in general and representations of sharkcalling in particular. These histories converge in multiple sites along the long and rugged road from the "global tourism market" to Tembin village. By following that road, I show how cultural tourism as prescribed in national and provincial tourism plans has not materialized as economic benefit, nor have efforts to "shortcut" this tourism infrastructure by documentary filmmakers. While this has resulted in frustration and accusations of greed and corruption, this failed tourism has also made possible a *lukluk insait* (TP: look inside) New Ireland for the kinds of reciprocity the sharkcallers and their families expect of their efforts. Together with Chapter Four this chapter gives a sense of Solwara 1's nurtural history, the space and time out of which it has come.

A sense of this nurtural history allows a better understanding of the site of Solwara 1, which geologists have named *The SuSu Knolls* (Binns et al. 1997). The SuSu Knolls are difficult to access by those without access to submarines or the international capital markets which keep

them in operation. To those in Tembin, such permanent occupation is not needed, for they are already of Danxinxi—living, as we might say, on a neighboring mountain in the same range. Like any nosy neighbor, they have a sense of what is going by listening to the noises next-door. To me, who has been in Tembin and become part of social life there, such permanent access is not needed either, for I have been "consumed" (my term) into one of its clans and now inhabit it—not as an indigenous person, but as a kind of *gas* (M: spirit)—a provocateur of indigestion at the very least, but ideally as a source of knowledge, wisdom, and inspiration. To the reader, who ostensibly has neither been to Tembin nor anywhere in the Bismarck Archipelago, the SuSu Knolls are doubly remote. But in the act of reading about the discursive evolution of "life" and "resources" in Chapter Four, and "Sharkcalling Culture" in Chapter Five, the SuSu Knolls may at least be known as a place that is both produced by humans and productive of "human" as an ontological category.

I conclude in Chapter Six with a look toward the anthropological past—specifically questions of indigeneity and marine tenure in Melanesia—to examine how sovereignty may be described in the present context. By looking to this past, "we"—now meaning indigenous New Irelanders, anthropologists, readers, or a broader public—may see something of the forces which have made the present state of affairs appear as it does. This *lukluk behain* (TP: looking forward/outward) grounds how we might act in our respective capacities in the future, when Solwara 1 as the progenitor of seabed mining is succeeded by eighteen more of its kind in PNG, more in Tonga, and still more in points further seaward. It is therefore with real, specific people in mind, that I proceed with this story.

Figure 2: The Author's House in Tembin

[1] See Crapanzano (2004:13) for the poem itself; the origins of this poem are unspecified but Crapanzano notes it is "translated by Washington Matthews and quoted in the writer Scott Momaday's (1992) forward to Trudy Griffin-Pierce's book on Navajo sand paintings" (2004:213).

[2] My assumption here is that the reader is less familiar with the Bismarck Archipelago than the indigenous peoples who refer to New Ireland or its surrounding islands as *peles* (TP: ~place).

[3] See also West 2006 for analysis of the topic of landownership in a conservation area

[4] See Obeyesekere (1992) and Sahlins (1995) for their later debate.

CHAPTER TWO: *NURTURAL HISTORY*

There isn't any symbolism. The sea is the sea. The old man is an old man. The boy is a boy and the fish is a fish. The sharks are all sharks no better and no worse. All the symbolism that people say is shit. What goes beyond is what you see beyond when you know.

-Ernest Hemingway, The Old Man and the Sea

In January of 2016, I was the sole resident of the modest guesthouse in Tembin village. It was the season of *Lavat* (TG[1]: monsoon) when wind from the northwest arrives from over the horizon in silent, sweeping squalls. During the days, as those of us in the village went about our business, we would keep a mindful eye on this weather as it snuck closer to shore. When it finally arrived, children would run for shelter under the eaves of their thatch-roof homes, and their parents would huddle together in smoky *hauskuks* (TP: hearths). Tired from its long sea journey, the cool rainwater would take their places in the public spaces of the village, settling down in clear puddles on the stony ground. These would last only as long as the tropical sun was concealed by cloud. The moment it emerged again, any water that had not been pulled down into the land would rise back into the air in beautiful rainbows. The remainder of the squall would *pas togun* (M: move landward toward the island's central ridge), dousing the gardens with water first before moving on to the "big bush" where it would linger indefinitely.

After such a rain, children reemerged from their hiding places, but more cautious and quiet now than before. There was a heightened level of danger in the place now—*larakot so muat* (M: the place is wet with rain). As beautiful as it was after these daily rains, Tembin felt like a haunted house as soon as they passed. Old people and young associate this time with death, as I was often told. Only after a considerable delay would villagers resume whatever work or play they had been up to, well aware that the condition of the place was different now than it had

been. One day between squalls, my language tutor Conrad told me some bad news. The local *katekit* (TP: catechist[2]) had died the night before.

> "In the night, big pain come up in his belly. Morning come…he get up, he throw up blood. He throw up again, then again, then…dead."

I was shocked. Not only had the man died, but here, in a place where everyone knew my every move, I had no idea this other person just a few houses away had died.

> "What was it?" I asked.
> "Oh, you know, something no-good. Something inside no-good."
> "What kind of something?" I asked.
> "Spirit no-good, you know."

We turned toward the sea and saw another squall mounted on the horizon. For awhile we watched it sweep toward shore, thinking of the man who had so suddenly been swept out of our lives. After a time, though, we resumed language lessons, getting in as much as we could before the rain drove ashore.

As most of these sessions went, we started and finished with a prayer. We bowed our heads toward the sea and Conrad spoke candidly to "Papa God," asking Him to watch out for my wife, my sisters, and our families, then praying for the "knowledge and wisdom" to continue our language work. Sometimes the prayers would ramble on for what seemed like forever—ten minutes or more of casual conversation with the Divine. That particular day, between opening and closing prayers, I asked what would happen with the katekit's body, and Conrad told me his family would organize a feast and "plant him in the ground" with a Catholic burial.

The following morning, we walked to the hamlet of the deceased in the main area of Tembin village. A large crowd had gathered around the man's house. A sharp, piercing cry rose in to the humid air, and repeated in wave after wave of sadness. Women were wailing. Daniel, my host in the village who had walked with me from the guesthouse, leaned over and told me I

should stay where I was and not get any closer. He was going closer into the crowd of gathered relatives, but I was to sit there awkwardly on a plastic chair in the middle of the village. When he returned an hour or so later, Daniel said "You can cry, too, if you want. Because you knew him. You walked with him last week from the mission to the river, remember? That was just last week. You knew him so you can cry too."

I returned home and found Conrad sleeping on the verandah, his belly rising up and down in deep, peaceful breaths. On hearing me approach he sat upright, yawned, and stared out at the sea. I fixed a cup of Nescafe for each of us and we began to talk about what I had seen and what would come next of my deceased friend and his body. Conrad told me there was to be a *bikpela kaikai* (TP: big feast) the following week. He told me I should come with him the following morning to the site of the feast, because he had special work to do.

After our closing prayers and a night of sound sleep, I woke the next day and met him as planned on the road. We walked a short distance to another hamlet belonging to a prominent couple who owned one of three trucks which made the daily trip to town. The woman, Agatha, had earned enough money to buy the truck through her work as a teacher at the Lihir goldmine[3]. Her husband Danny drove it daily, often departing the village as early as 3am to get a regular cohort of women to Kavieng by 8am so they could secure the most favorable locations in the market. Danny and Agatha's home was a two-story complex complete with gasoline generator, television, concrete water tank, and a small canteen where they sold trade goods like cigarettes and soda to locals.

Though I had become friendly with the couple during the long truck rides back and forth to Kavieng, I had not spent much time with them at their home. Upon arrival I saw the extent of their dedication to their children, the village, and their dead. Within their compound there were

five houses in addition to the large two-story house. These were all oriented around an open square which, like every other hamlet in Tembin, was covered with small grey river stones. In the center of this square was a beautiful shrine to Mary[4]: a small statue of her with arms outstretched, and flowers all around. On the southern end of this square there was a *matmat* (TP: cemetery) with a dozen or so small concrete graves. Next to that, adjacent to the road, there was a beautifully constructed *lantain* (M: men's house) made of bush materials. The house, unlike others I had seen, was octagonal. Inside, there were benches around its perimeter. In the center there was a smoky fire that was kept burning day and night.

Conrad, me, and a dozen others spent all morning dozing and talking in the shadowy corners of the lantain. No one chewed betelnut inside the enclosure, and without that stimulant, the morning was slow, calm, and quiet. Around noon, we moved out into the bright sunlight and ate a plate of rice that had been prepared for us by Agatha's female relatives.

After eating, the men and boys all chewed a betelnut, and then we began the day's work. Together, we built a "bed" out of thick, green bamboo that had been cut and carried from the bush the day before. Fueled by the betelnut and by the general excitement that accompanies all construction projects in New Ireland, the work progressed quickly. When it was complete, the structure stood five feet high, twelve feet long, and four feet across. It was oriented perpendicular to the beach and situated just behind the matmat amid a dense grove of betelnut trees.

As everyone sat to rest, I looked around for Conrad. He was there a few feet away, propped up casually on someone's grave. Sitting there against the ancient concrete headstone, he rolled a shoddy piece of tobacco into an old piece of the PNG Post-Courier and lit it with a dirty,

knockoff Bic. I asked him about the bed we had just built. Gesturing over his shoulder toward the center of the matmat, he said "Bed-taro."

I looked behind him and this time saw something I had somehow missed on my first glance around the place. In the middle of all the other cement graves was a construction site. There, partially enclosed by a wooden structure lined with green palm fronds, was a wheelbarrow, bags of powdered cement, and plastic buckets of water. There were metal trowels resting on pieces of corrugated roofing sheets, and two-by-fours alongside them. This was no mere construction: it was as if they were building an elaborate tombstone or perhaps even a mausoleum.

Something wasn't right. Here we were, preparing for a mortuary feast for the katekit who had died the day before, and there, next to us, was a clear sign that funeral preparations had been underway for at least a month. Only through more questioning did I learn that this grave and the malangan mortuary feast we were preparing for was not for the katekit, but for the son of the couple who owned the place—a boy name Fletcher of only fourteen who had died a year before my arrival in New Ireland. The death of the katekit seemed only to catalyze final preparations for the boy's feast—the construction of the taro bed and before it, this elaborate grave. As I would soon realize, death in New Ireland punctuates time. One departure marks the beginning or the impending end of other work for those who have died months or even years before.

Days later, on a rainy afternoon, Conrad and I returned to the site. We joined the deceased boy's father, Danny, around his television and talked casually about my studies and how I enjoyed living in Tembin. We ate rice and soft, yellow bananas, and watched as rainclouds swept through the open square of the hamlet, dousing the old graves and the new one with fresh cool water.

Later in this afternoon, Conrad began to ask me every ten minutes or so for the time. With no watch, his time was metered by the sun, the calls of the chickens, and so many other signs I hadn't yet learned. "Four o'clock" I said. "Four fifteen." When it was exactly 4:28pm, he rose up and nodded, then moved toward the graves.

The rain had stopped, as if on his cue. He walked out past the matmat and the lantain, and approached the bed. "Get your camera ready" he whispered to me. He had arranged with Danny a certain amount of privacy in this work, so that no women or noisy children were around. They kept their distance, carrying on with work or play under the covered roof of the main house and only occasionally glancing out toward us. Shirtless now, Conrad motioned toward my camera and placed both hands over his eyes in circles—"You get this!" he demanded. Then he climbed nimbly up a slanted piece of bamboo and stood atop the bed. On it, there was a single bundle of taro.

Facing the sea, Conrad bent down onto his knees and leaned toward the bundle. He placed his hands on it, and with the late afternoon sun bearing down upon his hunched back, said some quick words I could not hear. I barely had time to take a photo, for I knew little of what to expect. As fast as it began, his taro magic was over. Conrad climbed down from the bed and walked over to me. Laughing now, his reverence had been spent. Again he formed two small circles with his hands and placed them over his eyes, "Did you get it?" he asked. "I did!" I said, not knowing exactly what it was I had got. "Ok, let's move!" he laughed.

We bade farewell to Danny and his family and walked home. Ten minutes after reaching the guesthouse, the sky opened up with a torrential rain that would last all night and into the morning. *Larakot so momondat i larambat* (M: the place is cold with rain).

Grounded Expressions

Monsoon rains arrive, and people depart; the former comes from the sea (M: *savot morosu*), and the latter, upon death, is "sent away" in that very direction (M: *sapas tosu*). Through these comings and goings, *place* becomes intelligible through *site*—as the *where* to which something arrives, the *whence* from which it departs, and the bearer of a new condition, be it "cold," "dangerous," "quiet," or otherwise. What is called *Tembin* has become intelligible through the comings and goings of such sites—through the arrivals and departures of people, sharks, spirits, rain squalls, sea eagles, frigatebirds, and through rare windfalls of social and economic development. Each of these arrivals or departures become intelligible as such with regard to a more permanent Tembin—through other bodies which, in substance and spirit, are expressions of the land, are hosts to new arrivals, and are those who do the work of sending away the departed. These grounded expressions are the *here* from which the *there* (and everything from there) can be known.

While the term *indigenous* speaks to the same kind of irrevocable groundedness, I use the term *grounded expression (*or simply *expression*) when referring to these sites for three main reasons. The first concerns a problem of using "indigenous" in a discussion of non-, no longer-, or post-human social relations. Today, "indigenous" may signify a political category and/or an identity; it may be an "oppositional, place-based existence," and/or "the consciousness of being in struggle against the dispossessing and demeaning fact of colonization by foreign peoples that fundamentally distinguishes Indigenous peoples from other peoples of the world" (Alfred and Corntassel 2005:597). As scholars throughout Oceania and the Americas have shown, indigeneity may be irrevocable in terms of affect and identity while at the same time, as a political category, may be subject to interrogation and demands for proof (Kauanui 2008). Only

in the latter, categorical sense may the term be applied to humans along with that which is non-, no longer-, or post-human. Consider, for example, how ecologists speak of "indigenous species." While it is possible in some cases to determine the duration of existence of such things in a particular place, it would make little sense to speak of a plant or invertebrate's consciousness of its own continuous struggle against colonization by foreign empire.

In this dissertation, I write about living humans as well as dead ancestors, spirits, non-human animals, and other objects as being irrevocably grounded in place—as sites that, through social interaction, make sensible arrivals, departures. and ultimately, difference. But in doing so, I am careful to avoid speaking of non-, no longer-, or post-human indigeneity in the context of the anthropological project, for characterizing indigenous persons in any such way carries with it the danger of dehumanization. This is not to say I abandon the term indigenous or indigeneity here. In response to Danielle Dinovelli-Lang's (2013) question of whether a posthumanist move beyond cultural ecology's problematic association of indigenous persons with "first nature" (conceived as such by Marxist moderns) requires the abandonment of indigeneity as an analytic, I agree that it does not. But, in order to retain the ontological and explanatory power of that term (which as a non-indigenous person is neither mine to wield nor define), I suggest here that what is needed in my particular case is a more benign referent, one which makes possible "a focus on the relation as the smallest and most ubiquitous unit/pattern for analysis" (DiNovelli-Lang 2013:141, cf. Haraway 2003, 2006) while not precluding the specificity of such relations. My challenge here is to speak generally about sociality while not speaking universally of social relations that rely upon and are productive of specific places and persons.

Second, upon consideration of Mandak social relations or any relations for that matter (but especially those in the Pacific), it quickly becomes difficult to determine what or whom is or is

not indigenous. Life in the Pacific is and has been conditioned by indigenous mobilities, both in space and time, and in and out of political categories. Some of my own interlocutors in Tembin were born in the PNG Highlands, others were born in the Bougainville or New Hanover, and still others in New Britain. Mortuary customs and creations which I thought at first to be essentially Mandak turned out to be from the Duke of York Islands, and with probable influence from the Kuot language area to the north. In 2015, those on the west coast of New Ireland joyously celebrated the centenary of the Catholic Church's presence on the island, and told me over and over again how the Kavieng Diocese, from altar boy to bishop, was for the first time ever *Niu Ailan stret* (TP: composed and run entirely by New Irelanders). Additionally, consider the intermittent arrivals from over the horizon and the departures which together produce what has come to be called "Tembin." Those arrivals may be indigenous to other places, or (to complicate things even more), may be indigenous to Tembin, but only now returned after a bodily death or prolonged absence. Do the dead remain indigenous? That is a problem which exceeds the logic of race, blood quanta, kinship, or other qualifiers, and which is certainly beyond my own theoretical jurisdiction.

As an analytic, indigeneity challenges settler-colonial definitions of Natives as peoples who are grounded but immobile. Vicente Diaz employs the term "thick veneer" to describe how movements across seas, islands, and cultures may "yield no clearly demarcated layers or boundaries of what is and is not Native" (Diaz 2010:27; see also Trompf 1987). This image certainly applies in Tembin village, while not replacing or foreclosing on the political potential or embodied meaning of indigeneity. Rather, by providing a standpoint from which indigenous and non-indigenous peoples may sense separation, difference, and in some cases, enduring "tactical"

survival, it allows both indigenous and non-indigenous peoples to “witness the ferocity of indigeneity” (Diaz 2010:27).

Expression is a term which, as I will demonstrate here through a description of what in New Ireland is called a *mumu*, reiterates the irrevocable groundedness of the subjects of the present study—some of whom are indigenous persons and others who are more recognizable as sharks or spirits or ritual materials—while at the same time leaving the definition and practical use of *indigenous* and *indigeneity* to the discretion of those persons in New Ireland and elsewhere who actually embody that term, who deploy it as a political category, and who think through it as a means of making or remaking worlds.

A final reason for using *expression* involves the question of indigeneity at sea. For my Mandak interlocutors, and throughout the Pacific, this is not a question. The sea, to use Epeli Hau'ofa's words, is *in* Pacific Islanders, not just a geographical signifier (Hau'ofa 1993). And yet, in debates about the control of resource-rich oceanic spaces like the Bismarck Sea, indigeneity is completely omitted from the conversation. There are, as Nautilus Minerals asserts, "no landowner issues" associated with their Solwara 1 project (NMNL 2008:21).

Statements like this do more than reject questions of territoriality. In the context of Papua New Guinean politics, wherein the majority of land is in fact owned by indigenous citizens, the assertion that there are no landowner issues at sea implies that indigenous citizens are not, nor ever have been, present there. This is, of course, false. But so too is the question. A major claim I am making in this dissertation is that indigeneity exceeds emplacement: that while indigeneity may be experienced and articulated in specific places, it is continually sensed and strengthened through movement and through enduring exchanges with that which arrives from and departs to other places and other dimensions. The "landowners" in question can only be

determined to be *not* landowners if they are envisioned to be land-bound—not only grounded as indigenous persons *in* the island of New Ireland but grounded *on* it too.

As mentioned in the first chapter, rather than completely rejecting this question of indigeneity at sea (and thus rejecting the power of Papua New Guinean and international laws), I choose here to work alongside it; to write parallel to corporate and state logic by showing how the sea and the land are interconnected through intermittent but ongoing exchanges of matter and knowledge. Persons indigenous to New Ireland are physically grounded in the land, but are both physically and existentially grounded in the sea. The word "expression" makes this parallel writing possible. By hinting at a beyond (Crapanzano 2004) that is simultaneously spatial and temporal (that which is expressed but never fully revealed by the expression), social relations and the sites on which they are constructed can be shown to transcend the admittedly fictional land/sea boundary while still acknowledging its rhetorical existence.

What, then, is the relationship between my “expression” and Diaz’s “thick veneer”? Simply put, expression is the “skin” exhibited by one thick veneer to another. Expression is both a personal noun and an event: it is the one doing the expressing and the moment when that expression happens. In one sense, it is a moment of contact—a sounding of one expression against another. But because we are speaking of thick, multiply-layered veneers here and not just dull, irresonant timbers, there is much more to it than that. Any veneer, be it the skin of a body or the hull of a canoe, encompasses an interior which at first glance cannot be seen. This internal beyond, which like the spatial or temporal beyond eludes visual appropriation in moments of contact, may be understood through a close understanding of arrival, presence, and departure as both have been discussed in the anthropology of Papua New Guinea.

The remainder of this chapter outlines this three-part schema. In the first part, *Arrival* corresponds with emergence of accrued and embodied difference from a distant past into the present, and the partial revelation of that past. Following that, I define *Presence* as the event of being-in-place between and expression and their witness(es), and the place and moment from which enduring relations may commence. After a return to Tembin and a description of the Mandak mumu as an example par excellence of the above moments, I then turn to a discussion of life. How do expressions, assembled as they are out of past environments, move through the world? Consideration of this movement makes possible a discussion of *departure:* the time when presence is broken up; when the social relation is disintegrated. In departure—either through *consumption/inhabitation* (departure to within) or through departure *tosu* (M: to seaward)— comes an expectation of return. It is from this expectation that I theorize rhythm as a analytic—one that when examined via "presence" allows environments in the past-, internal-, or future- beyond to be sensible through a simple question: *U pas mia?* (M: From where have you come?)

Emergence into the Present

Since Malinowski's *Argonauts of the Western Pacific* (1922), the emergence of difference through the arrival or "contact" of persons, practices, ideas, and materials has been a common theme of Melanesian anthropology (Barth 1987; Robbins 2004; Weiner 1988). One of the greatest contributions of Melanesian studies to anthropology and to human knowledge in general is to show that difference is not something that one person or group carries along as ontological baggage from one place to the next—something to be rejected or synthesized together with other ways of being. Rather, it is through the meeting of two or more expressions that difference emerges. When it does emerge, it initiates a series of affective and material exchanges which

are, in theory, limitless in scope and scale. For Mandak-speaking persons, the condition of possibility of this exchange is that expressions of difference (be they human or otherwise) become sociable as kin. One's eventual existence is resolved through an initial imbrication within an elaborate social network.

Figure 3: The Taro Bed

This attained, rather than ascribed, kinship is itself predicated upon two basic and mutually dependent conditions: First, the expression must have come from someplace else. This implies a temporal movement away from the prior; it must have emerged from *there* and *then* and arrived *here* and *now*. Second, the expression must be different in form or function. This difference has little to do with how it looks or works (though the attributes or aspects of an individual form often come to color the tone and tenor of ongoing relations). Rather, it is their *having been away*

which makes notable the distinction between the arrival and their witnesses. To put this in personal terms, the difference between you and me emerges when you are away from me and I away from you. Upon our mutual arrival[5], we each materialize our own past; and present it to each other. Simply by being ourselves, we reveal accrued difference to each other. Each of us embodies a *having come from,* and in doing so, we make the present sensible as such.

It is at this point in this imaginary sequence of sociality that "contact" becomes problematic. "Contact" has deep roots in colonial and neocolonial narratives of multiple worlds—of 'old worlds' and 'new worlds;' 'first worlds' and 'third worlds;' 'western worlds' and 'indigenous worlds;' 'worlds of today' and 'worlds until yesterday[6].' A powerful concept, 'contact' transverses scale itself, conceivable between continents as much as it may be thought of locally or even atomically. With its implications of place and moment, it renders social the essence of the Hegelian dialectic, allowing that in turn to explain how history is made through thesis, antithesis, and synthesis. Through the substantiation of difference as categorical opposition, contact has allowed difference to assume a structural position and role within certain teleologies and ecologies. Not only does it offer an explanation of how history is made, but it acts as the fulcrum upon which histories have been understood to be made differently.

A major problem with "contact" is that it inscribes unquestionable truths on those involved; it makes *emergent difference* in the forms of bodies, societies, and practices appear as *forms of difference.* Anthropologists have shown that such forms of difference are most often anthropological productions or inventions (Alberti et al. 2011; Clifford and Marcus 1986; Gupta and Ferguson 1992; Marcus and Fischer 1999; Wagner 2016[1975]). Nevertheless, this discourse of contact and the formal difference it imposes on others (be they "uncontacted tribes" or "Westerners") persists today. When evoked, it not only inscribes "preconceived ideas"

(Malinowski 1922:8-9), but dulls the enchantment of the encounter, be it everyday or exceptional.

Here I reject the concept of contact in favor of something that has not already been used in the historicization of difference as opposition, and thus as a means of understanding, naturalizing, and in some cases effecting domination. *Presence*, I think, better signifies the meeting-in-place of two forms emergent to each other—the beginnings of a social interaction through which difference become intelligible and actionable as the grounds of an ongoing kinship. While "contact" suggests a meeting of two prior forms-of-difference, I want to argue here, following anthropologies of Melanesia and the advice of my interlocutors in Papua New Guinea, that Presence allows for an appreciation of the emergent properties of difference and an account of how that difference, having emerged as visible, allows for the expression of one's origin story. As an abstract way of thinking about human history, its forms, and its interactions with other forms, Presence allows for explanations of ethnographic phenomena that are immediately synchronic but which allude toward a movement of materials, ideologies, and affects that make diachronic time sensible as such. In other words it allows for a verbal and emplaced understanding of difference that does not so easily succumb to the dangers implicit in notions and narratives of formalist opposition.

Presence, like "contact," implies a face-to-face meeting and a mutual revelation. But what is revealed by one expression to another in such moments is by no means its full story. It is in the incompleteness of this revelation that difference (as the material residue of one's past) affords attention, interest, and enduring sociality. To see how this works, let us return to Tembin Village, where a well-loved and much-respected man—the local katekit—has just died, and where Conrad has just performed the first iteration of his taro magic.

The Mumu

The purpose of Conrad's magic, performed as it was on an empty bamboo bed, was twofold. First, it was meant to "call in" more taro from wherever they might come. Second, it was to "fill up" the bellies of people in the village so that the gathering taro could be spared. It is worth noting here that in Tembin and much of New Ireland, taro are able to "walk about," moving from garden to garden or into the village at the behest of people skilled in taro magic. Taro has an important origin story in which can be found several motifs: adult men and women gone off to work in the gardens, their children left alone to play on the beach, and the generous *Moroa* (M: God) who arrives from the sea and gives the children taro to feed their hungry bellies.

Figure 4: Conrad

For now, it is sufficient to say that Conrad's magic worked. When I returned to Danny and Agatha's hamlet a week later, the bamboo bed was completely full of taro, each bundled together by the "stick" (stem) with three or four others. Huddled together on the bed, the origin of each individual bundle became impossible and irrelevant. To me, coming upon this enchanted scene, they were a singular assemblage now; a vegetal clan.

On that day, a few dozen meters from the taro bed in the hamlet's central square, I saw the first of what would be five mumus in its early stages of assembly. *Mumu* may refer to several things. It may refer to an earthen oven characteristic to many Pacific islands, or the event of assembling such an oven and cooking ("*mumuing*") food in this manner. In the nominal sense, a mumu is a bundle of garden food and/or animal protein that is cooked or "turned" in this way. Depending on its size and circumstance, a single mumu may feed a dozen people or several hundred. I focus here on this latter definition, for the image of the three-dimensional mumu provides a clear example of how the embodied difference, having emerged from elsewhere into the present, becomes sociable as kin. Should we like another example of this emergence, we could just as well imagine a human, a pig, a canoe, a shark, a slit-gong drum, a malangan carving, or any such item with an outer "skin" and hidden interior. In New Ireland, any such hollowed body is capable of generative expression.

A mortuary feast involves many of these bodies, human and otherwise. Here I choose not to go into detail about the bodies of particular persons—neither the katekit nor the boy—for speaking more of them after they have been "finished" is not appropriate and may even be dangerous. Instead, I will focus on the ontological emergence of the mumu as a kind of typical body. The mumu takes on its formal characteristics, as all bodies do, through the assembly of disparate parts. And like all bodies, it undergoes an emergence—a turning-point where it comes

into being as itself. Through this, it gains the capacity to give something of itself to other bodies, nourishing each of them, and through them, nourishing the entire place.

The feast I witnessed in Tembin was the final event of a three-step process of "finishing" the child of the host couple, who died long before his time. This "last work" for the dead is the most elaborate and expensive in terms of the quantity of food and people present. The host in this case, Danny, went to great lengths to secure the resources and labor required of the event. His efforts were in support of his wife, Agatha, and their son, who was in life and remains in death a member of his mother's clan. Danny's efforts, supplemented by his own clan and reciprocated by hers, materialized in the construction of the beautiful cement tombstone for their boy, and the creation, cooking, and consumption of five large mumus.

On the first day of the three-day event, the first mumu was constructed in a rush of energy and effort. In the central square, three strips of thick tree bark, each nearly forty centimeters across and six meters long, had been arranged side-to-side atop ten assorted lengths of supple brown vine and several tree limbs, each 5cm in diameter. Bundles of green *koxo* leaves were spread across the strips of tree bark, forming a soft bed. When this was completed to the satisfaction of the elder men and women, baskets of peeled taro (not the taro that was on the bed) were dumped onto the bed and arranged neatly. A minute later, ten boys folded the thick tree bark around the assembled taro, wrapping it on all four sides.

Four of the strongest boys then sat on each side of the now-rectangular bundle. They passed the vines across the bundle to the other man, and then, all at once, they pulled with all their force on the vines to squeezed the bundle tightly shut. One man leaned against each of the short ends, pushing all of his weight into the bundle to keep the folded treebark under the cinched vines. No longer could any leaves or taro be seen, only the ruddy brown tree bark, the

supple vines, and the straining men. Working together, they secured each vine, forming a neat line of reef knots across the top of the bundle. They secured the loose ends of the vines under other vines, further strengthening the bind. Finally, one man approached with a long, slender bushknife and pierced the bundle several times. Amid sweat and laughter, they lifted the bundle and carried it like pallbearers into the shade of a large tree to await its next work. From start to finish, the assembly of the mumu took sixteen minutes from the time the treebark was laid out until the mumu was pierced and carried into the shade.

I avoid the words "start" and "finish" because it is impossible to identify with any certainty the origin of a mumu or, for that matter, the mortuary feast in which it is finally presented. Considering the amount of cultivation and planning required for such productions, it seems their origins are always unfolding. While we might argue this one began with the death of the boy or more recently, of the katekit, or with Conrad's magic, it seems to extend back in time and space beyond any of these occurrences.

However, if we examine its material components, most importantly the bodies involved, we may get a sense of the *terrain* out of which the event or object has come into *our* view. I emphasize the word "our" in order to emphasize the limits to possible knowledge of the arrival's past. The mumu has come into our view at a particular place and in a particular moment—we can be certain of that. In showing us its vines, its leaves, its shape, size, smell, and weight, the assembled mumu allows us a glimpse of its history in and of the land. This particular mumu allowed me a glimpse of the many factors of its own history of differentiation. I have enumerated these factors extensively, arranging them in linear time, in the Appendix.

Figure 5: Making the Mumu

Having witnessed the construction of this first mumu, I knew what it was made of and the material it contained. I saw what was physically concealed inside of it, and that knowledge remained with me until other mumus were constructed, bundled together in two massive earthen ovens, and "turned." What I could *not* see was everything that happened before my arrival. Who had peeled the taro? Who had grown it? From which massive tree did the bark come? Was the entire tree cut down to obtain it, or was the tree also peeled?

By the time of my meeting with this mortuary mumu, I had begun to ask the ubiquitous Mandak question, *U pas mia?* of everything I encountered. The mumu, more than anything else, helped me to realize the power of this question and the way in which ongoing social relations are predicated on the form and substance of its answer. After this mumu was assembled and set

aside in the shade, I stood there looking at it and thinking of this deeper history and marveling at the amount of work manifest in that humble bundle. I was soon joined by two men from the New Guinea Highlands who had married into the village and now, as local custom has it, lived here and tended to the gardens belonging to their wives' clans. Like me, these men took a particular interest in the mumu, for like myself, neither of them were from the place. "In the Highlands," one of them proudly told me, "we do the mumu differently."

For the moment, me and the two men from the Highlands remained there in contemplation of the mumu. We remained at a close epistemic distance from it, and consequently, from the place. We, indeed, were the only ones staring at it; transfixed by it and nothing else. After a while I was distracted by another thought. Why wasn't anyone else staring at it? The answer (and I am speculating here) was quite simple: They too were from Tembin. Like the mumu, they were of the place. Inasmuch as they knew themselves, they knew the environment out of which the mumu had come, either because they contributed to its production through daily labor, contemplation, planning, ritual assembly, and magic, or because they were, in a sense, consanguineous with it, having been raised alongside it by the very same forces of nurture. If anything, the completed mumu acted as a kind of "dialectical image," (Benjamin 1982), revealing in a flash where they had come from and who they were.

Present Action

Simply by being present—by existing in space and time with others—expressions like the mumu incite action. This action might be contemplative, as in the act of thinking, or it may be kinetic and involve movement. Expressions, if they are to express to anyone at all, must draw in attention. To do this, they may deploy any number of means to bring others closer to them. One way of doing this is through visual attraction. Another is by "calling," as one would call a shark

or a taro. A third way involves the expression's own movement toward others. Before discussing "autonomous" movement in more detail, which I do later in this chapter, and the instrumentality of calling (see Chapters Five and Six), let us focus for the moment on an example of how visual attraction works to incite action in others.

Months after the malangan event described above, I was present in Tembin during a ceremony in which four newly carved *kaba* (see below) were erected on the grounds of *lantain Sombui* (M: the men's house of one of Tembin's seven clans). During preparation for this event, which like most customary events in New Ireland culminated with an elaborate mumu feast, I witnessed the preparation of these kaba by Sombui men. In the center of a large seaside area enclosed by a bamboo fence, a younger man who seemed to be involved in all artistic matters sat next to one kaba that had already been formed by another man. Like all kaba, its two forked branches converged to a single stem (or diverged from it, depending on your perspective). The entire thing had been smoothed out, first by an axe and then by a shard of glass from a broken beer bottle. Four meters long, it lay there on the ground waiting to be painted.

Together with several younger boys, I watched as the artist slowly mixed his paints. In one half of a coconut shell, he muddled together the red tree berries (M: *memelek*) with seawater using one of the ubiquitous black river stones. In another shell, he mixed the yellow (M: *lalanxan*). A third color, black (M: *mapmaxat*) was sourced from the bottom of a spent can of motor oil. Starting with the black, he painted two bands around the base of each fork, immediately adjacent to their juncture. He used black on several knobby parts of the fork which had been left there by the carver "for style." Together with another man now, he painted striking red bands around each fork, evoking (to me at least) the red arm bands worn by New Ireland *maimais* (TP: customary clan leaders) during mortuary and other events. Yellow bands followed,

and then black bands next to those. By the end of the project, several bands had been left unpainted. The entire structure looked like an angry two-headed coral snake.

It attracted the attention of all of us men present within the lantain, and several of the women who, from a distance outside the fence, occasionally glanced in. While we all looked at it, I took a moment to ask several of those gathered why the kaba and many other malangan were painted this way, with bands of yellow, black, and red.

"It is style, that's all," one man told me, though Daniel, who had been supervising this and other projects throughout the day, added, "We have a word for this. It is *xinxi* (pronounced *ghinghi*). It means, well…something like, *to glisten*."

The kaba did just that, glistening against the stone background on which it rested. Later that afternoon, all four kaba were erected in a secretive, magical, and very tense ceremony over which Conrad presided. One was driven into the ground at the southern edge of the bamboo fence, another to the north, and two more were place *namel* (TP: centrally) within the ground of the lantain. The last was planted just before sundown, perfectly timed by those in charge.

In coming into view, the four kaba made us move around, coming toward them and away from them. When they were finally completed, blessed with secret magic, and driven into the ground, they attracted the attention people near them. The two "entryway" kaba directed all those entering or exiting the lantain to step over its base and between its forked limbs, through what is called its "mouth" and what is to be the mouth of the lantain. The two kaba within the lantain, positioned as they were near the gravestones of *tumbuna* (TP: elders; ancestors), attracted both visual and moral attention. In times "before," I was told, the meat of killed enemies was hung from these forks in baskets so that it would not touch the ground before being consumed. In those times, should a man or woman *within* the clan commit some inviolable

taboo and not be able to "buy their shame" by contributing one or more pigs to the clan, they would be told to hang themselves on these now-ominous looking structures. The kaba certainly glistened, but like anything that glistens—be it gold from the ground or chambered nautiloids who rise each night from Danxinxi—they presented a mortal threat to individuals and to the clan itself.

The kaba, like the mumu, had a *wok* (TP: work). This work was not categorically imposed with regard to some existing structure (in other words, its work was not its *role*), but rather, the work of each kaba and each mortuary mumu was negotiated upon their arrival. It is impossible to say what this work was from any perspective beyond my own. To me, the mumu revealed something of its history and thus, something of the land and the place. It worked for me to the extent that I worked as its observer. In "glistening," or displaying its difference, it inspired in me the idea that the gardens, as well as the forests and seas and skies, were a source of social relations—the *there* out of which the *thats* of the world emerge.

While the immanent interrogation of particular expressions is necessary to reveal the specificity of their spatiotemporal source, I do not ignore the fact that more or less durable categories come to exist through successions of such moments of presence. The fact that I have not given the mumu a proper name demonstrates this clearly—"mumu" is itself a linguistic category I have used to refer to organic bundles of similar shape, appearance, and context. While categories may be used to signify *forms of difference,* they may also be used to mark expressed differences which only emerge in moments of presence. The two, as Clay (1977, 1986) and Strathern (1988) have argued, are easily confused[7].

"Nurture" in the way these authors conceptualize it engenders difference by incorporating various forms, substances, and past actions together as a singular "person." When expressed

socially, such persons verify past or present social connections and make new ones imaginable; they are productive of the causality of various effects, which are especially apparent in Clay's explanation of specific kinds of "male" and "female" work among her Mandak interlocutors. In discussing the planning and presentation of mortuary feasts, Clay describes the work or action involved in becoming "male" or "female" (Clay 1977; 1986). In either case, gendered personhood is effected in moments of social assembly through the concurrence of what she calls "maternal nurture" and "paternal substance": A "man" or "woman" becomes such (and only ever temporarily), through the investment of their care or otherwise the material resources under their control. According to Clay, what is "male" is achieved through "an innate capacity for 'action'" and "the initiation of events" which are always made possible through the cultivation and control of surplus substances. What is "female" is achieved through "an initial, necessary nurture for human life and growth," and "the extension and continuation of relationship" (Clay 1986:24-25). "Male" and "female" are made visible through certain kinds of social action.

If nurture engenders difference in persons—be that called "gender" or something else—it is persons (as incorporations of that process of nurture) who, in being physically present with other persons, express that difference. In doing so, they allude to their respective origins. Understood literally, the expression (a term which can now be seen to encompass and foreground "persons") does not merely index its past, nor is it merely an icon or manifestation of it. Rather, insofar as it remains present among others, the expression offers the opportunity for others to learn something of its *nurtural history*—the process of substantiation through which it came to exist as different, and thus, by which it has attained the capacity to engender action in others.

This process is historical as well as spatial; it can be conceived as both a process and as a terrain or *rot* (TP: road) along which one has traveled in their journey to the present. With each

moment of presence—each "*Nambung!"* (M: good morning) or nonverbal acknowledgement of others—expressions accrue difference, be it in appearance or disposition. Upon arrival *in our presence,* they become intelligible by way of this difference, which then comes to ground the timing and tenor of our own relationship. We as its audience see our object has come down a *particular* road, not a general "environment;" through transactional engagements with particular persons it has accrued difference as multiply layered veneers.

This is not to say that emergent beings proceed as individuals down that road, walking in a linear path toward the present and gathering resources as if our meeting was prescribed in advance. Instead, it is our perception that the other has been on such a journey that makes the road intelligible. In other words, the world outside of here and now becomes intelligible through interaction with emergent others; through the exchange of *stori* (TP: storytelling) that follows the question of where one has been. Presence in place brings the past into the present, either instantaneously or through this longer transactional exchange. This action of turning toward the past as it is expressed by others is the fundamental, generative action of social life; it is what makes possible a social future, for it enables a visceral sense of place and world, and thus provides the field in which options for one's own way of living socially may be negotiated. I understand these actions to be more than or perhaps pre-symbolic. Insofar as humans are part of nature and not distinct from it, our social interactions express the real world as we make it and are made of it.

Departure

At what point, and by whose hand, do expressions stop expressing—does this social life end? When does that which is "male" or "female" cease existence as such? When does the "human" or "shark" or any such expression cease to be? My answer is that such relational

existence stops when Presence stops: when the expression (of engendered difference) stops expressing that difference, or when, for one of several reasons, difference ceases to be different. Following Clay, this would entail the death of the expression, which, because it is "an incorporation of the similarities against which differentiating symbols exist and against which they are expressed" (Clay 1977:30) is not necessarily a corporeal death, but merely indicative of a departure or dissolution of similarities. In other words, expression may end when the either the expression or its audience departs the place or diverts their attention elsewhere, or, it may end when the difference itself ends through three processes I will describe as *epistemic intimacy, consumption,* and *inhabitation*.

Death ex situ: Departure and/or Foreclosure

Metaphysical discussions themselves require occasional grounding in the particular, so now, with concern for the attention of my own audience, I return to the mumu. Recall how during the malangan mortuary feast in Tembin, my attention toward the first of five mumus eventually ended. The bundle was carried off, then assembled together with other mumus which had been filled with other substances—each the product of their own nurtural history. Two massive pits had been dug adjacent to the beach but just inland of the dark volcanic sand. In each were placed large black river stones, each the size of clenched fist. On top of this base layer of stones were placed large chunks of firewood gathered from fallen trees. More stones were tossed on top of the firewood, and the whole thing was lit with the help of many *bombom* (TP: dried fronds of the coconut tree). As the wood burned down, the stones fell through it, gathering together with the stones at the base. The fire raged, at times doubling the height of the pyre and sending a plume of grey smoke into the palm canopy above.

Soon the black mumu stones had absorbed the heat of the fire. At the order of several of the older men, unburned firewood was cleared to the side by younger boys holding thin sticks. Then, using "tongs" made of split bamboo, the boys hurriedly arranged the red-hot stones. The heat of the stones radiated upward in a thermal haze and sweat poured from the men's faces as they worked. With much shouting and commands from the older men—*"Togun!"* (M: toward the bush!), *Tosa* (M: left of seaward!), they managed to make a circular bed of stones three meters in diameter. Then in an instant, other boys began to arrive with the mumu bundles. With more directional shouting, sweating, and laughing, they arranged these side-by-side and parallel to the sea. On top of what now looked like four leaf-green coffins, they used the tongs to jostle the hot stones into position. A second wave of workers entered, and covered the entire assemblage with green leaves from the *gorgor* tree that had been cut and delivered from the bush. With frantic motions of shovels and sticks, they buried all of it with dark, rich soil, covering any possible exit for the intense heat within. Driving their digging sticks into the ground like scorched tombstones, the men whooped and cussed and then collapsed with exhaustion.

The mumu was now gone, combined with others to the point where I could no longer perceive its difference, and then buried underground. It was no longer different, and my earlier contemplation of its origins had entered the realm of memory. Then and now, I had in mind an image of what it was, but that existence (the way it attracted attention, expressed to me something of its past, and thus generated in me particular kinds of action) was never to be again. Mumus are not only spatial beings; but like anything, they have duration. They exist for a certain time, then disintegrate or disappear. Inasmuch as their presence is a presence-to-us, their

duration is measurable by the duration of our attention. The moment we turn away, or the expression departs (or is buried), it becomes absent to us.

Figure 6: The Feast held by Danny and Agatha

It would be many hours before the mumu returned into view. When it did, it was not the mumu I had known. When the boys (now reinvigorated with betelnut) dug it out later that afternoon, its green skin had wrinkled and charred. Its dimensions looked different too. When it was eventually cut open, I stood there waiting and watching with camera and notebook in hand. To my surprise, the mumu I had come to know earlier contained *tapioc* (TP: cassava) and *kaukau* (TP: sweet potato), not only taro. Only later when analyzing my photographs and notes did I realize the first mumu was put in a *different* in-ground pit on the evening of its assembly. My anticipation on the unearthing of that and the four other mumus had been met with *new*

difference: Each had been down a different road, and had met the stones and their measured release of heat within the ground. The *raw* of my own prior relation with the mumu had died, been *cooked*, and now after a long day of waiting, was characterized by nothing else than hunger.

When things go away, they may go far away or merely underground or out of sight. To Mandak speakers, when a person's body ceases to be socially active in the present (as it does in sleep or in states of unconsciousness), they are said to be *semet.* This is best translated as "being actively dead." The prefix *se-* indicates a process underway; while *-met* is slightly more complicated, indicating a culmination of some prior action—an arrival into a condition of rest and/or quietude. Only when they are *semet pam* (M: being-dead-finished) are they said to have exited the social world with little hope of return in the way others have come to know them.

In Mandak mortuary rituals, those that are *semet pam* are sent away to *biksolwara* (TP: the big ocean). But this social exile is not always so dramatic. When a person goes into their own house, they are essentially *gone.* Their exit is defined less by invisibility as much as it is by their own being-autonomous. In her discussion of Mandak "realities," Brenda Clay (1986) makes a useful distinction between modes of "autonomous personhood" manifest in the "individual capacity for private thought and self-determined actions" and "relational personhood" manifest in "the involvement in nurturing interactions, expressed through the sharing of food and labor" (Clay 1986:30). The accrual of one's capacity for action (in being physically away or socially detached) and that enacted capacity (in being physically and socially present) foregrounds enduring relationships—an oscillation that in part elicits Durkheim's image of motion between the everyday and the ekstatic (Durkheim 2001:12). The "going away" makes plausible the return, which always involves the presentation of newly accrued difference.

Anthropologists working in Melanesia and beyond have written much about the generative capacity of death. In these accounts, death and accompanying mortuary rites help to clarify ideas and rules about social reproduction, land rights, and identity (Albert 1987; Battaglia 1982; Bloch and Parry 1982; Clay 1977, 1986; Damon and Wagner 1989; Foster 1988, 1990; Jessep 1977; Küchler 1988, 2000; Lipset and Silverman 2016; Malinowski 1925; Powdermaker 1933; Wagner 1986). Robert Foster (1990) especially emphasizes the constructive nature of death out of social life. Citing Bourdieu (1977), he suggests death and accompanying mortuary rituals "often define the primary locus of social reproduction—the ensemble of projects whereby agents contest, transform, and recreate the social and ideological relations within which they carry on both biological reproduction and the production of material existence (Foster 1990:431). Social life is reproduced *upon and out of* individual deaths. Through the work of ritual, the materiality of the deceased is employed as a resource for the clan. From both symbolic and materialist perspectives, actions and connections to place and space are brought under scrutiny in these events, from the planting of gardens or coconut trees to the organization of the event itself. During such occasions, "people confront, analyze, judge, and discuss their perceived realities and expectations" (Clay 1986: 160).

To say the dead go away is to say they go away *from here* (from the village and the work of everyday life) *to* somewhere else. The immediate effect of exile, and likewise the momentary cessation of our attention, is therefore a doubling of worlds: Death (as an event) initiates the production of this elsewhere, drawing it up from the sea as an otherworldly place. In doing so, it produces *space* as that which lies between here and there. Ideally, an immediate loss gives rise to promise and hope. The departure of a person from the social world or the turning of one's attention away from them instantly provides an opportunity for their return. While attempts are

often made in New Ireland to predict such return[8], it is this essential ambivalence which encourages the excitement, curiosity, and vitally-important attention that shapes every "new" (read: different) arrival. Therefore departure not only produces space as that which emerges between here and there; it also produces durational time between now and when someone departed, was sent away, or ignored. By producing a beyond to which social beings go, these departures nurture *place* as both the logical and actual ground of extant presences.

Death in situ

1.) Intimacy

In order to maintain difference with regard to their audience, expressions must remain in place—"above ground" and in "the open." But that is not all. In order to continue living socially, expressions and their audiences must conceal an aspect of their respective nurtural histories. In Tembin, it is not only the movement in and out of presence but also the careful balance between revelation and concealment that measures (in a temporal sense) social actions. If too much is revealed, attention is easily diverted and attention ends. In one sense, this might signal a rejection—the end of interest and a refusal or turning away. But in another, it can be understood as an intimate elimination of the kind of socially engendering difference that drew the two together in the first place.

It is to this end that the question *U pas mia?* aspires but can never achieve: the full revelation of the other's past hidden within a more superficial "skin." One cannot give their entire origin story, for that would involve telling the entirety history of the earth and the cosmos. They can, however, tell it to the extent that the one asking the question becomes satisfied or loses interest. When people walking along the road in Tembin encounter a familiar face coming from the other direction, the question is asked, but the answer takes just a few seconds. The difference

that has accrued from having been away is quickly resolved—itself being rendered *semet,* or quiet. Now *wanbel* (TP: literally one-interiority; in agreement), they are joined together as a single, harmonic unit and can proceed with discussion of present or future matters.

2.) Consumption

This state of harmony or quietude is not only achieved by questioning, but in times of radical difference, may be achieved through consumption. I left the scene of the Tembin mortuary feast at a time when our particular mumu had reemerged transformed from the warm earth. With our hunger growing and hundreds of people now gathered around, we raised it aloft with four support sticks and rushed it like careless pallbearers to the center of the square. We set it down on a pile of *gorgor* and banana leaves which had already been arranged perpendicular to the sea in a neat row. Using bush knives, Conrad and a swarm of other men hacked at the hardened vines until the bundle burst open. The vines spread apart like ribs, the charred treebank fell away like skin, and its golden-brown insides were exposed to the light of the setting sun.

The other mumus were lined up and similarly eviscerated, and then all of it was displayed at once. Thousands upon thousands of pieces of garden food now lay before us, and what was once hot began to cool. With banana and breadfruit leaves in hand, a series of boys who had been working all day ran outwards from the mass of food and threw down these "plates" in front of each person. Continuing their frenzied pace, they delivered portions of food by hand to each plate, here some taro and tapioc, there some kaukau and roast pork. After a blessing from a local holy man, we all began to eat.

Piece by piece, the soft, cooked food disappeared into our bodies. Once a social being who enticed us with its difference and held us momentarily in its spell, the form of the mumu was now destroyed and its contents consumed. Now, the mumu had nothing more to reveal of its

nurtural history, for the objectification of that history was transferred into us. Nurture once visible as difference had gone underground, had been cooked, and now, having returned, was ravenously consumed. The relation persisted while the forms had all changed. No longer were the once-concealed insides of the mumu different to us, for that difference was now *in* us.

As we ate, our own dispositions changed. Each of us grew tired, and as the sun dipped into the sea, the raucous conversation of the past three days dwindled to a low murmur. After helping my host-mother Turisen gather up her grandchildren and many baskets of surplus food, I began the short walk home. From the guesthouse, in the last moments of daylight, I saw a cloud of pale smoke drifting out across the reef. The feast was over. With a full belly, I was soon *semet korop* (M: asleep like a flat board).

Consumption is different than departure, dissolution of attention, and the kind of epistemic intimacy attained in the typical roadside encounter. To consume is to render difference presently absent by literally incorporating it into oneself. Through this interaction, consumed expressions generate the capacity for autonomous life much in the same way that departed individuals generate the capacity for social life. In consuming that which we once knew to be different, we incorporate that difference. Inside of us, something magical happens. Difference, now formally invisible but substantively present, is metabolized into energy that becomes useful in our own work. What has become *ian* (M: food) nurtures us, not only in terms of growth, but in terms of object-oriented action and the rate at which that action takes place. Through consumption, we incorporate nurture so it can then be expressed outwardly. Not only food, but also images and ideas may be consumed, rendering them momentarily quiet in order to nurture action. Getting inside us, they inspire us to act in one way or another; to act differently with regard to others who have perhaps not seen those images (or not eaten so much food).

3.) INHABITATION

A third way in which expression may end is through inhabitation. Until now, all has seemed peaceable and harmonious in this description of Mandak metaphysics. But there is sickness and death in Tembin, as in much of New Ireland and New Hanover. In spite of all the beauty and kindness and wonder, there is pervasive malaria, tuberculosis (some of it now drug-resistant), HIV/AIDS, diabetes (TP: suga-sik), and cancer, all of which may go undiagnosed for years before effecting a sudden death like that of my friend, the *katekit*. Much of the problems are preventable and/or treatable with the combination of customary and clinical healthcare. And yet people still suffer and die. What I have witnessed to be a broken and corrupt provincial system of distribution of medical goods and services to rural areas together with an enduring colonial history contributes to what an expatriate friend of mine eloquently calls "the Melanesian Mindfuck:" Yes, there is extreme natural and cultural diversity. Yes, there is extraordinary beauty. And yes, people are unbelievably friendly to each other and to foreigners. But then, amid all of this, you'll suddenly find yourself holding a tiny infant who is deathly hot and lost in the rigors of malaria.

Tembin has no medical clinic or aidpost. The closest is a fifteen-minute drive north, assuming one can hire a local truck to take them there and that the road is passible. Even if one can make it there, the clinic often has a sign on the door saying something to the effect of "We have no more medicine," or "The doctor is not here." The better option is one or two hours further north in the village of Paneras which is normally better staffed and supplied. The provincial capital, Kavieng, has a larger *haussik* (hospital), but is at least a five-hour drive from Tembin.

People have been living and dying in Tembin for a long time, and have developed a number of explanations and customary treatments for illness. Today, Christian prayer is given a

large role in the prevention and treatment of sickness. This has not and will not circumscribe or replace customary and/or modern medicine, but it has, through a hundred years of missionization, been imbricated to the "thick veneer" that is life in Tembin. I have seen it work, and I have also seen it give false hope for the resolution of what would, with adequate medical care, be a treatable condition.

The time it seemed to work happened early in my stay in Tembin. A woman in the neighboring hamlet fell ill with convulsions. I did not go see her, for I was not permitted to do so by my hosts (this was probably for the best). For days she stayed up at night, shaking uncontrollably. According to everyone I asked, it was a case of "spirit-no-good." It took months before I could put a name to this spirit, though that name never became personal.

In much of New Ireland, sickness is *inspired*. By that I mean it comes from elsewhere, is taken into a person's body, and results in a kind of social action that is erratic and disruptive. If we consider life as a rhythm of arrivals and departures, sickness involves an abrupt alteration of this rhythm. The afflicted may sleep longer, may not sleep at all, or may move in and out of consciousness against their will. They may speak unintelligible words as if possessed, and may tremble uncontrollably. They might move around the gardens differently because they are in some pain, or may not garden at all. They might bathe more or less than before. In short, their being-social assumes a different frequency—their bodies play to a different tune.

What exactly is taken into a person's body? Most often, it is a *gas.* In central New Ireland, gas is not a vapor (though it may become invisible and interact like one), but a kind of expression: it is a being-different. Known variably for their trickery, boldness, deceit, stupidity, or cowardice, gas are "nonhuman entities inhabiting the Mandak world…invisible beings who occasionally manifest themselves to individuals" (Clay 1986:50). They are an expression or

class of expressions within which are many sub-types—*Levepas, Losombes, Lolutam* to name a few. Each species of gas (if I may extend this nomenclature) spends the majority of its time outside the village—deep in the forest, in the gardens, in caves, in the trunks of trees, or beyond the shallow fringing reef. It is not so much that these beings cannot be seen because they tend to be invisible; but rather, they are invisible because they are not typically seen to be doing normal human work. These various species do their own work but not with everyone else—they may cook and garden and meet and fall in love, but they do so separately. To put it as one man in Tembin village did, they are "same, but different."

In one sense, gas may be interpreted as foils to place-based human sociality, showing us that social personhood is achieved through place-based *wok* (TP: work). Like humans or any other living thing, gas are conceivable as bundles of relations that become visible in certain, gendered forms. While the object of their work may be the same as ours—gardening, fishing, fixing engines or airplanes—*gas* rarely present a visible form to us because form is only valid as the vehicle of work and theirs always takes place somewhere else. If humanity itself is achieved through presence with other humans—through planting taro, fishing, eating, drinking, chewing betelnut, praying, playing, walking, and talking with other persons in the same place—being-gas is achieved through all of this in a world that is both parallel and proximal to ours.

Sometimes, however, *gas* do enter into the village or are encountered in the bush or the beach. Rarely are they encountered collectively. Instead, they most often approach individuals when they are alone or asleep; in other words, when they are *semet*. In some encounters, *gas* bring wealth and knowledge; they may be "the source of creativity for certain song and dance used in mortuary feasts" (Clay 1986:51). Evidence of their enduring presence in New Ireland can be found in certain kinds of malangan carvings which still reside on the island or in foreign

museums: those with inordinately grotesque or otherwise gracile features, with hair red like fire or black with star-pocked faces are usually gas.

I learned that it was indeed one of these strange creatures who had gotten into the neighbor woman and caused the convulsions. "A gas," people said, had "met her in her sleep and now was inside her. Now it *wok olsem* (TP: works like this, with shaking and uncontrollable movements). It was only after a week of all-night prayer sessions with relatives that the woman recovered. The gas, I was told, exited her body and went back home.

There are ways of avoiding inhabitation by gas and sickness in general. Children are told not to play on the beach in the time of northwest monsoon, for malaria is said to come from the sea. Considering that nearly everyone on the island carries in their livers the malaria parasite, and activation of these parasites often happens in times of sudden temperature change, this is neither superstitious nor inaccurate: Malaria *does* come from the sea in the form of cold wind, which gets into the body and induces change. It matters little that the agent of that change is a parasite or a spirit, for change itself is only sensible with regard to one's action toward others.

In Tembin, it is also customary when turning a sharp corner or stepping onto the verandah of another person's house to make one's presence audible so others are not taken by surprise. This is done in creative and unique ways—through a little cough or grunt, or through a hum or mumble. It is widely known that gas prefer to sneak up on people with little warning, so that they might carry out their purpose unhindered by direct attention. Once, I failed to do this, and approached Conrad from behind without him knowing. "Oh! You're a gas now!," he exclaimed. As far as I knew, I bore no gas within me. But from then on I made sure to make a noise when approaching other people from out of their field of view,[9] "Death," as they say in Tembin, "always comes from behind."

The Sigilik

Through what I have described as departure, intimacy, consumption, and inhabitation, difference is itself made different. One expression gives way to anticipation of its return, or to an altogether different expression in and of the place. There is something missing, however, in this inscription. In one sense, Presence is an abstraction that demonstrates how two or more emergent beings come together, maintain an interaction predicated on mutually-apparent difference for a certain duration, and then either depart each other's company or incorporate the other's difference through consumption or its corollary inhabitation. As an abstraction, it serves as a terrain of intelligibility in which actions by humans, spirits, and other expressions can be situated; it is a spatiotemporal structure within which Mandak expressions of truth may resonate with more or less volume than expressions of truth from elsewhere.

Up until now, what I have described as the expression might be considered hopelessly docile—as "something that can be made; out of a formless clay, an inapt body, the machine required…" (Foucault 1991:179). It may appear as if there is no agency; as if Mandak expressions are bound to be social, even if that sociality involves withdrawing to another place for an indeterminate time.

This is not the case. One may postpone or reject presence altogether. What seems more plausible is that agency transpires through a process of translation within bodies—be they "human" or "taro" or otherwise. This is not to say one's eventual arrival will not be anticipated and enacted by others, for the form at which objects come to be known is partially beyond their control. Presence is to some extent a question of one's own movement through space, and that movement toward or away from others may be inspired by a gas or by God. In either case, it

only happens when a force of some kind enters the body and itself becomes present to a special organ known to Mandak speakers as the *sigilik.*

The sigilik can be found inside men, women, taro, pigs, sharks, and most other moving things. Should it reside inside a human (M: *lamandak*), this "small man" is called lesigilik-*mandak.* Should it reside inside the shark (*lembe*), it is called lesigilik-*be.*

Consider an example. When the shark hears a human sharkcaller rattle his coconut-shell rattle (M: *lorung*), he does not blindly turn and swim toward the source of the sound. Like any sensory being, he receives information. In this case, that information comes in the form of pressure waves, which travel long distances outward from the lorung through the sea. That signal meets the shark, and he takes it in. He hears it with his ears or senses it in other ways. That information then enters the space of his body. There in his body, the information encounters lesigilik-be. The sigilik, the "small man" who resides inside this particular shark, listens to that information, considers it, and then instructs the shark to either swim toward the source of the external information or to avoid it completely. It takes a given pressure differential and converts it to binary instructions: Go, or do not go…turn right or turn left…present yourself to the sharkcaller or remain here, lurking in the abyss.

While other bodily organs are acknowledged for their respective functions, the sigilik is the organ of religious and/or epistemic metabolism. It does the work of the soul, which as I was told in Tembin, "takes in the Holy Spirit and tells the body what to do." It takes the knowledge and wisdom one prays for daily and converts that, at its own discretion, into social action. In this sense, it is a kind of spirit-broker, turning inspiration into disposition. And like any organ or organism, it too can succumb to dysfunction. Should a gas or virus or other "spirit-no-good" enter into one's body, the sigilik might be eclipsed by the stronger power. Alternately, should "a

man or woman be full-up with sin," the sigilik's vision will be clouded and its instructions to the body might then be wrong. The afflicted might go where they shouldn't, interact with the wrong persons, or might arrive or depart at the wrong time. The shark might be coerced by the man to come to his canoe (and then be killed and consumed); or the man might call sharks all day and, for one reason or another, return home empty handed.

Beings like humans and sharks move throughout the world, variously becoming "human," "shark," "male," or "female" as they do. They become "man-eaters," "shark-eaters," or may assume more benevolent dispositions. Bodies that become sensible as the objectification of past relations are in one sense docile, for they are susceptible to inhabitation, consumption, departure, and intimacy with others. But at the same time, they have a say in these engagements. By looking inside themselves, they can choose to continue, break away from, or refigure certain relations. This look inside is conceivable as a look into their own past, for that past is contained within them.

Summary

Through an ethnographic description of a Mandak mumu, I have demonstrated how expressions emerge into the world and how sociability comes about through a history of accrued nurture and through place-based encounters in which that nurtural history is asked for, and in part, given. Through this analytic may be found an explanation of agency that may or may not be autonomous. Does one ever know if they are possessed by a gas? Is the capacity of their own sigilik to translate spirit into movement clouded with sin? Certainty is foregone here in favor of wonder, chance, fear, and hope. In waking hours and in dreams, we move through the world, from one presence to the next, accruing difference only to express it objectively as a bundle of

similarities to some new audience, themselves being the difference by which our own personal mumus come to exist as such.

Existence is precarious, to be sure. But it can be made more certain through social action. Departures (willed or not), intimacies, consumptions, and inhabitations are modulated by oneself or by others. It matters not whether we call the force of this modulation a sigilik or soul, a mind or brain, a spirit, or any other thing; what matters is that inside everyone is an interiority that is partially concealed from even ourselves—an *internal beyond* that is conceivable in much the same way as the past, present, or future beyond. This is where difference develops, and is where its conditions of possibility may be preserved.

In sensing this precarity, and caring about it, it is tempting to inscribe categorical opposition on other bodies. What develops, or rather is born when this happens is a genus of specters—a hoard of present-absences which linger around, causing all kinds of trouble. These stubborn presences are known to Mandak speakers as *lentanon:* a term which at once signifies "picture" *and* "spirit." Lentanon are what tourists make when they use their cameras, and what carvers make when they carve (M: *malangan)* a gas in a piece of driftwood. It is not that these pictures are ungrounded, for they too have their histories. What makes pictures different is that they avoid responding to the question *U pas mia?* In refusing to do so, they afford no indication of their work to others and foreclose upon what could have been a more predictable rhythm of exchange.

One pervasive lentanon is frequently encountered in local conversations, national and corporate policies, and international guidelines. It is called "the environment," and is used with reference to New Ireland flora and fauna, land- and seascapes, and climate. As I describe further in Chapter Four, "environment" signifies a space and/or place in which lives and deaths happen.

When used spatially, the term is often synchronic—a picture within which can be slotted factors and actors that are more or less diverse. When environment is considered in temporal terms, it is associated with a larger process of geological or biological evolution. However, such a broad view tends to erase the specificity of places as they are today, and worse, signifies a single origin out of which a single species (or life in general) has emerged. Whether synchronic and particular or diachronic and general, "environment" as a descriptor is ungrounded from the conditions of its own possibility. Being a lentanon, or image of a world, it is removed from the long histories of nurture that have made phenomenological differences sensible as such. It is therefore a bad place to start when attempting to preserve particular sites or social relations.

This urge to preserve comes about when the particular sites are destroyed or at risk of destruction. Consider a forest, for example, which may be referred to as "an environment" but is better known in its particularity. In *Conservation is Our Government Now* (2006), Paige West describes the forest as a "source and sink" of the life-force of Gimi beings. Whether these beings take the form of a tree kangaroo, a cassowary, or an old woman, their way of living socially is inspired by this force. Upon the death of such beings, that life-force retreats to the forest where it resides temporarily in other forms of life until the day it returns into the village again. As much as the forest is a generative "spacetime" (Munn 1992) out of which life itself emerges, it is a future beyond to which lives go when they are no longer being social as they once were.

Adding concern for history and structural inequality to Strathernian notions of emergent personhood, West and contemporary environmental anthropologists have addressed the consequences of enclosure or destruction to the capacity of these spaces and species to engender socially productive difference. As I have emphasized in this chapter, for difference to emerge at all, it must emerge from somewhere. That somewhere is defined by its being beyond here—

outside (or inside) of the present site. If change happens in that terrain, be it a ravaged forest or a river polluted with toxic mine tailings, the sociality which might emerge from it will be affected accordingly. To the extent that expressions have moved across that terrain (and continue to do so on their way to new moments of presence), it is conceivable that their own social rhythms will be modulated as if they were inhabited by a gas.

Let me explain. Recall that gas are most often encountered in the forest by lone individuals. When they return from the forest to the village, their encounter with the gas (or with anyone else for that matter) renders them different to others. It matters little whether the gas has been encountered casually, intimately, or if it resides within them, for the effect on others is the same. In observing the expression of difference, and by asking where this new arrival has been, those present may realize that the object of their attention has indeed encountered a gas. In paying attention to the difference that owes its existence to that and other encounters, those present can know something of the expression's nurtural history—the *rot* (TP: road) they have come across on their way to the present place and time. In other words, they can know something of the "forest" remotely, without ever having been there. A particular gas, and truly a forest, a sea, or any such terrain is manifest in this new arrival; its condition can be known by their disposition. As is often said in PNG, "land is life"; and by asking where certain ways of living have come from, the conditions of the land can be known. These ways of living socially—what I have loosely referred to as *dispositions*—inspire knowledge and discretionary action in those who observe it. With guidance from their own internal history, they can choose to remain engaged, turn away, get inside, or consume the difference they have just encountered.

What I have presented in this chapter is an epistemology intended to gives further resonance to a particular disposition directed toward the Solwara 1 project and deep seabed

mining in general. Understood through Presence, when people in Tembin say the project "is not good," they are expressing a keen awareness that something else has begun to alter the rhythms by which social beings old and new arrive and depart from the place. Their statement is not merely opinion, but a diagnosis of real or anticipated illness—of the inhabitation of histories and futures by way of the present. It is as if a gas has gotten inside the liquid from which all things solid emerge.

Figure 7: Tembin

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[1] I have been told this word comes from the Tunggak language of New Hanover. With over thirty distinct languages in New Ireland Province, and a long history of interaction among language groups, words are often borrowed.

[2] A leader of the local church or several local churches; not an ordained priest but more of an administrator, the katekit handles the financial and often the liturgical affairs of the congregation

[3] Lihir Island sits east of the southern part of New Ireland, and is a large source of both provincial and national revenue.

[4] A predominately Catholic village, these little shrines are present in each hamlet in Tembin, and are always maintained beautifully. Most feature Mary in the foreground, a wooden crucifix behind her, and a carved y-shaped kaba behind that. Seen from head-on, Mary with her arms down, the crucifix with arms horizontal, and the kaba with arms vertical, the three overlapping forms give the appearance of the Vitruvian Man, or with more imagination, Mother Mary in full flight.

[5] All arrivals are conceivable as mutual in this cosmology, insofar as there is a witness to see it. The exception is *gas:* (see later in chapter)

[6] See Diamond (2012)

[7] See Chapter One for a review of these arguments

[8] During my fieldwork I was told at one point that Mary (mother of Jesus) had arrived here on Earth the prior weekend. She had come to Russia, specifically.

[9] Another time, while I was walking through the busy market in Kavieng town, I felt something behind me watching. I turned and saw Daniel, who must have been following me for a few minutes. We laughed, but later I wondered if it was something about town that brought out the gas in him—or if everyone, when outside of the village, becomes a kind of parallel version of themselves.

CHAPTER THREE: *RHYTHM*

Oceanic Space is always already relational, not only connecting objects in space but objects in space through time, with an ethic of being in relation pointed toward beauty.

-Adhann Iwashita (2017:149)

My original plan for research in New Ireland involved the collaborative production of a "counter-map" of marine space that would challenge assertions that "landowner issues" did not apply in the Bismarck Sea. As it was conceived, the final product would not be as important as what would be revealed about the politics of ontology and of representation among several groups—an indigenous fishing community, environmentalists, and foreign tourists. In producing the map, we would reveal points of friction (Tsing 2005) on an archipelagic canvas (Stratford et al. 2011).

When I arrived in New Ireland, and finally in Tembin village, my plan was challenged on several fronts. Most important among these was the instruction I received from my host family in the village who told me they would support my research, "as long as it was with them only and they could control it." I was told explicitly that my project "should not involve the community." Upon hearing that, I was faced with a choice: I could switch sites and begin to build a relationship with a different family. Or, I could stay put. Of course, the latter option would require abrupt changes to my objectives and methods. The choice was a difficult one.

After a few days of deliberation, I still had not figured out what to do, and so I arranged transport on a public truck from Tembin back to Kavieng, the provincial capital. I bid farewell to the family and everyone else, and I remember them looking at me like I would never return. At that point, frustrated and exhausted, I was not sure that I would.

Five hours later I stepped out of the back of the truck into the village of Kaselok. Before heading to Tembin, and in previous visits to New Ireland, I had stayed here with a man who has since become a brother to me. I walked down the dirt path into his seaside compound, and was greeted by his daughter, her friends, and many of the transient "boys[1]" who stay here when there is any kind of manual work to be done. With smiling faces, they grabbed my heavy backpack and led me to a bungalow built for visiting friends and researchers. After tea and pleasant conversation, the women told me "go rest." I was happy to oblige. Throughout the afternoon, I slept soundly under a mosquito net as the warm seabreeze passed through the room. It was as if I wrapped the whole house around me and shut out the confusion of the last few weeks.

When I awoke, there was nothing to do but drink more tea, rest, and read. The only sound besides the crashing of the waves on the distant reef was a light drumming from inside the men's house in the neighboring compound. I walked a few steps toward the bookshelf, which held my books and a few others left by previous guests of the bungalow. To my dismay, they were mostly anthropological texts. But then, in what would lead to a major epiphany, I pulled from the shelf a bright blue laminated document—a "Spark Chart" on *Music Theory and History* (SparkNotes 2014). I had purchased this in the US to give as a gift to children in the village, but now intrigued, I walked out to the balcony, sat down on a wooden bench, and unfolded the colorful chart. Printed on it was all the information the beginning music theorist needed to know about notes, rests, measures, chords, accents, and rhythm. It was a welcome distraction from my own project.

I devoured the material. I committed to memory the meaning of *pitch* and dwelled on distinctions between compositional forms—the *sonata*, *air*, and *fugue*. I learned about *accents* and *beats*, which seemed related in a way I did not yet understand. Particularly interesting was

the definition of *note*, which I had always taken for granted as something an instrument played. From the chart I learned that a note is defined both by what it is and what it is not: it had a *frequency* which was perceivable as *pitch*; it lasted for a *duration*; and at either end of its duration was an interval of silence or a note of a different pitch. Qualitatively, the note's onset, or *attack,* could be emphasized or muted, as could its *decay*. Together with other notes and their respective accents, it produced a *beat*, which could be *measured* in advance by the composer, measured *in situ* by the performer and the listener, or measured retroactively by the theorist. All of this was understandable, but the definition of *rhythm* seemed vague. "Rhythm" it said, "refers to the arrangement of beats in a piece of music. Rhythm is expressed graphically with notes and rests (durations of silence in which no notes are played)" (SparkNotes 2014:1). Yes it may *refer* to an arrangement, and be *expressed* graphically. But what *is* rhythm?

For the time, I set the chart down and turned my attention toward the beach. From the verandah, I could not see much of the ocean. In New Ireland, landowners seldom cut down the large trees that grow in the space between the sand and the habitable parts of the village. There are various reasons for this, but the effects are obvious. Looking out from land, one is somewhat sheltered from the seabreeze and all it may bring. Looking in from sea, the island is lush and green, with few signs of human life. From my perspective in the raised bungalow, I noticed this natural barrier had been reinforced by my host family. At the base of the coconut palms they had placed piles of organic debris. There were grass clippings, dried palm fronds, vines, and pieces of burnt bamboo. All of it was brown or black and in various stages of decay. Close to these piles I could see where other piles from months or even years before had completed their transformation into soil.

Later I learned this particular pile of rubbish was not everyday waste, but had been part of a malangan mortuary feast held to "finish" several deceased relatives of my host family and the family in the adjacent hamlet. While that event happened prior to my arrival on the island, I saw what was left of it there at the edge of the sea. With each high tide, some of it was carried out into the ocean. What remained, by turning back into earth, helped to keep rising seas from the homes and gardens of the village.

I then turned my attention from the pile of rotting debris to a livelier scene. In between my bungalow and others, and along the sides of the pathways connecting them, my hosts had planted small flowering trees. Some were bright yellow, some green-leafed and of every shape and shade, and many I recognized to be the blood-red *tanget* (*Cordyline fruticosa*; called *Ti* or *Ki* elsewhere in the Pacific). I stood up and walked down the wooded steps of the verandah, and for a moment was immersed in this stunning biodiversity. I followed along the paths, moving at random from plant to plant and color to color in this kaleidoscopic garden.

Soon I found myself near the men's house where my friend and owner of the land, John, was sitting with several boys from his home island of Lavongai (New Hanover). I joined them and sat for a while in silence, staring outward at the colorful flora. One of the tangets caught my attention. Propelled by some unseen force, one (and only one) of its many fronds had started to twist back and forth, revealing its dark red face, then its pinkish belly. On and on it danced while the other fronds stood still. Here was a plant as active as any animal; it seemed to be seeking attention, and securing ours by moving in such a way. It was rhythmic; it was musical.

"Look," I said to John and the others, "look at that tanget moving like that."
Together, we all stared at it.
"Yeah" John exclaimed with wonder, "it is really moving!"

After some consideration, John told me the elders from Lavongai pay close attention to plants, and know that when they move in such a way, there are spirits around the place.

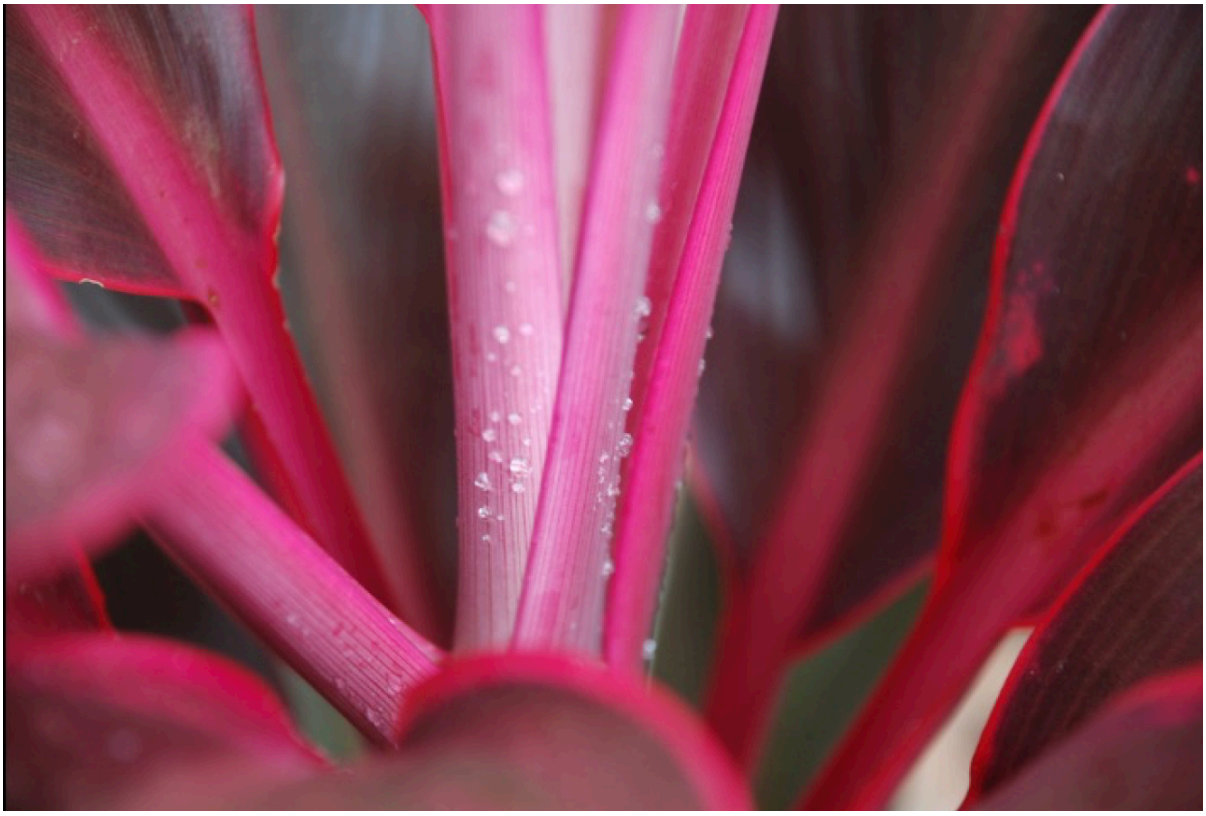

Figure 8: Tanget

Were they spirits, I wondered, *or just the wind?* Just then, and still now, it seemed more likely to be spirits. We were no more than twenty feet from this dancing tanget, and yet we felt no wind at all. None of the other plants were moving; the place was absolutely still and quiet, filled only with the distant roar of breaking waves and the melodic chirps of the Willy Wagtails flirting in the trees.

Just then, in a moment that was nothing short of revelation, the truth of the situation became clear: The place was not still at all, but only appeared that way. Everything was active, everything was moving, and everything was alive, animated by the spirits John so casually told me about. That pile of rotting rubbish on the beach, some of it was moving into the ground while other pieces were moving out to sea with the tide. It was not dead, but simply no longer

green and living in the way it once was. The tanget, on the other hand, was alive and expressive, seducing our attention with its twists and turns, its flashes of crimson and pink, of light and shadow. What was dead was busy dying, and what was living was busy living *to us.* Everything adjacent to it appeared still, as if it had conspired with the spirits to allow them to make themselves known through the movement of that single leaf.

Were those spirits present there among us, and moving the leaf with invisible hands? Or were they in fact the wind? Had they moved out to sea with the rotting matter and snuck back in again through the trees to twist that single leaf in such a manner that we might see it? For the moment, the answer was unimportant; all that mattered mattered to us, and only mattered because we were there to see it. Like musical notes with their pitch and duration that only exist if they have an audience to exist *to*, the things all around us entered our awareness through rhythms composed by unseen forces and contained in their own unique form.

The next day I climbed aboard a crowded public bus (PMV) to the town of Kavieng to buy rice and tinned fish, phone credits, and field notebooks. At the stationary store, I stumbled upon a case of brand new music notebooks with empty scales instead of ruled lines. I bought three of these, returned home, and set to work. Using the SparkChart with its basic definitions, I began to outline an ecology of rhythm—one in which simple phenomena could be accounted for through a kind of acoustic cartography. My early conceit was that all these plants, animals, and other things could be represented as frequencies relative to my own attention—in other words, as *notes,* each with their own duration. In transcribing them as such, one would transcribe the temporal environment directly onto the page. Through a close listening of the resulting piece, it would be possible to critique the forces of its composition in new ways; something could be

learned about the invisible spirits who animate the movement of these sound objects in the same way one might come to know something about Bach through listening to *The Art of the Fugue.*

Looking back now, this was a lofty dream. While the movements of plants, birds, and hermit crabs might be transcribed into the staffs and bars of a music notebook, "playing" such notes with any instrument required a process of codification into a musical language. At some point during a valiant effort to establish rules for such codification, I realized that the lesson to be learned from this musical metaphor is that the world beyond that which is present can be known through questions of timing and speed: What forces have accelerated the arrival of objects into view? What is delaying their departure, or their return? Who or what enrhythms the objects of our attention, and thus, our attention itself? While my previous chapter presented a metaphysical model of social life, this chapter builds on that model to develop a critical *rhythmanalysis:* a way of thinking about and writing about compositional power—a *tempography* of the prior-, present (internal)-, and future-beyond.

Rhythm and Everyday Life

The topic of rhythm has a rhythm of its own. It is periodically present in certain disciplines, then absent again for years until picked up again with different eyes. Literary critic and poet Michael Golston has argued "The first half of the twentieth century witnessed a profound interest in the subject of rhythm, an interest that transgressed discursive boundaries and linked scientific fields and the arts in unusual ways" (Golston 2008:2). Golston identifies an early sign of this interest in rhythm in an article by Thaddeus Bolton in the *American Journal of Psychology* (1894). Bolton identifies rhythm as "the manifestation or the form of the most fundamental activities of mind," and by discovering the extent to which "it underlies mental activity," he aims to determine rhythm's role in physiology and nature. "Certain cosmic

rhythms" he suggests, "may be shown to underlie in a measure and be the cause of many other rhythms in plant and animal life" (Bolton 1894:146-7; cited in Golston 2008:14).

In an article by one of Bolton's contemporaries, we see the generative function of rhythm expressed through an oceanic metaphor:

> The conscious state, accompanying each wave of attention, groups together or unifies all the impressions that fall within the temporal period of the wave…This rhythmical grouping is due to the unifying activity of the mind…Each succeeding wave groups a like number of elements, so that the series is conceived in the form of groups [Swindle 1913:183-184].

Considered psychologically, rhythms are reliant on and come to define wave-like periods of conscious attention from which precipitate groupings of like elements in both space and time. Like ocean waves which carry to shore foreign materials, and in doing so, assemble those materials together in a singular assemblage visible to the person standing on the beach, the world of things, in being encountered by the human mind in periodic states, is itself periodized. Structure is then imposed back onto the world through acts of representation.

Definitions of rhythm in music theory, both then and later in the century, have also been concerned with acts of grouping that are subjective (wave-like), but that come to imply an objective order (meter) on a world understood to be external to the listener's body and mind. In Wallace Berry's *Structural Functions in Music* (1987), rhythm is presented as "a generic class of pacing, patterning, and partitioning events in music; a facet of rhythm is grouping, a subcategory of which is represented as meter" (Berry 1987:303). The musicologist, like the rhythmically informed psychologist, concerns themselves with "the rates at which events (changes) take place within the various structural parameters" while acknowledging that "rhythmic grouping is a mental fact, not a physical one. There are no hard and fast rules for calculating what in any particular instance the grouping is" (Berry 1987:301).

From the psychologist, we learn that what allows grouping to happen are breaks in attention: beginnings and ends to states of consciousness. From the musicologist, we learn that grouping is facilitated by many factors, one of which is meter. As Berry notes, meter is "dependent on accent—a phenomenon whose existence no one would deny yet in which may qualities of impulse (event, attack) interact variously at different levels of structure" (Berry 1987:301). Putting it succinctly, he adds "Questions of rhythm lead at some point to questions of grouping, and in turn to questions of meter, which rests upon the difficult questions of accent" (Berry 1987:301). Accent is of course relative to the listener's perception and position: what may sound like an abrupt new note to one person may have been an ongoing drone to another.

The beginnings and ends of conceptual or perceptual groups are thus defined by what lies on either end of them, and on the mind or ear doing the listening. Rhythm is not so much an object to be defined, but "both manifold and specific: the sum of a broad range of factors each of which is in some way a manifestation of pace and grouping" (Berry 1987:305). It can be known indirectly through a close listening that is both qualitative and quantitative—that looks to the beginnings and ends of groupings and to the ways in which difference emerges to mind from the grouping process.

There are significant implications here for an understanding of difference, which in turn has implications for anthropology. From this psychologically or musicologically informed perspective, musical and psychic difference respectively emerge through a process of perception and representation, which have both spatial and temporal connotations. Difference in space emerges through a process of demarcation; through an ordering of the world into likenesses that are recurring or ephemeral. Such representations may themselves be grouped rhythmically, as either cyclical or linear; as synchronic or diachronic in nature. Should we continue along this

path with regard to a body, a mind, and a world external to both, we might imagine multiple worlds—structures diversified in form through a foundational metaphor of the wave.

Few explicit studies of rhythm exist within anthropology, which seems peculiar if we consider Dewey's assertion that "rhythm is the universal scheme of existence" (Dewey 1989:154), or Foucault's remarks on the disciplinary use of time by "religious orders…the great technicians of rhythm and regular activities" (Foucault 1979:150). In his writings on religion, Durkheim (2001) deploys the term as a metaphor to describe the wave-like acts of social assembly and collective representations which come to define calendrical time. "The division into days, weeks, months, years, and so on," he writes, "corresponds to the recurring cycle of rituals, holidays, and public ceremonies. A calendar expresses the rhythm of collective activity while ensuring its regularity (Durkheim 2001:12).

Levi-Strauss (1969) likewise naturalized the wave-like aspects of rhythm in his emphasis of successive states of meaning-making. Myth, like music, "operates on the basis of a twofold continuum", one "external" (diachronic) while the other "internal" (synchronic) which is "situated in the psychophysiological time of the listener" (Levi-Strauss 1969:16). For him, while music and myths operate in a kind of unconscious, psychological time, informing both structure and conduct, the *act* of listening to music and of telling of the story rely on "visceral rhythms" (Levi-Strauss 1969:16, 21). As he argued,

> Any piece of counterpoint includes a silent part for the rhythmic movement of heart and lungs…Just as music makes the individual conscious of his physiological rootedness, mythology makes him aware of his roots in society. The former hits us in the guts; the latter, we might say, appeals to our group instinct. [Levi-Strauss 1969:28]

Among these scholars, the rhythmic entry of the anthropologist into the field, itself informed by psychological ideas about waves and ethnological preconceptions about their own subjects' wave-like movements between profane and sacred states of existence, gives rise to the

conception of radical social difference which foregrounded nearly century of scholarship. The primary precondition of this epistemology is that differentiation happens within a closed and bounded system—a *langue,* a "society,"*,* and later, a "humanity"—within which may be grouped various *forms of difference.*

We see evidence of this composition when successive ethnographers refer to culture-areas with the definitive *The—,* as with 'The Nuer', 'The Trobriand Islanders', or 'The Mandak." In doing so, they invoke what appears to be empirical difference to set that particular group apart from all others (Lederman 1998). Specifically, we see this in comparative accounts of "time-reckoning" and structural organization between exotic others (Evans-Pritchard 1939; Malinowski 1927) and European selves (Leach 1961). Notwithstanding a few exceptions, 'rhythm' itself receives little attention in such accounts, for immediately after Durkheim, it became *natural* or "oecological" (Evans-Pritchard 1939), and thus beyond the purview of social science. Later, with poststructuralist critique, rhythm as an empirical category becomes the proverbial baby in the bathwater, and relegated to metaphor.

Toward a Rhythmic Political Ecology

In his 2013 article *Beyond the Suffering Subject, Toward an Anthropology of the Good,* Joel Robbins questions what an anthropology rightfully removed from prior studies of "the other *qua* other" might look like (Robbins 2013:448). Citing Fabian (1983), Clifford (1983), and Clifford and Marcus (1986) as heralds of the discipline's reflexive turn, Robbins looks to the writing of Michel-Rolf Trouillot to show that what these authors framed as an upheaval within anthropology "needs to be understood in relation to broader cultural developments outside of it" (Robbins 2013:449). Foremost in these developments, according to Trouillot, are two histories: one which is a history of blurring of differences especially visible in anthropologies of

globalization, and another which is a symbolic history of "how the West became the West, and of how in the course of doing so it created the savage as both its antithesis and sometimes its promise" (Robbins 2013; cf Trouillot 2003:9, 24, 25). Robbins suggests that in spite of Trouillot's critique, anthropology in the 1990s was a confused discipline searching in the dark for new objects.

During the time of his own fieldwork in Papua New Guinea, Robbins relates how this anthropological "light" or gaze came to settle on "a figure of humanity united in its shared vulnerability to suffering" (Robbins 2013:450). Looking to Didier Fassin and Richard Rechtman's (2009) genealogy of the notion of trauma, E. Valentine Daniel's proposition of violence and suffering as "culturally unrecuperable surplus" (Daniel 1996:365), and João Biehl's superlative ethnography of suffering (Biehl 2005), Robbins suggests that what happened within the discipline following Trouillot's intervention and his own return from fieldwork was an objective shift

> premised on the universality of trauma and the equal right all human beings possess to be free of its effects…a suffering slot ethnography…secure in its knowledge of good and evil and [that] works toward achieving progress in the direction of its already widely accepted models of the good. [Robbins 2013:456]

Robbins' formalization of this singular and emergent anthropological object allows him to draw on his own ethnographic understanding of Urapmin (PNG) morality to theorize "an anthropology of the good." What anthropologists of suffering take to be a singular good, he argues, can be deconstructed and made more colorful using the washed brushes of an older anthropology. A study of value, morality, well-being, empathy, care, the gift, time, change, and hope could, he argues, become the renewed objects for a post-reflexive anthropology.

I could very well add "rhythm" to this list of possible new objects. But along with Veena Das, who in a debate with Robbins critiques the tendency of anthropologists to "perform

[baptisms] that create boundaries around objects such as 'the good'" and thereby "arrogate to anthropology the right to judge the behavior of others" (Venkatesan et al. 2013:4), I choose to instead double-down on what Robbins (2013) suggests we think beyond—an anthropology of suffering; and to think about suffering in terms of the environment. How might we (as anthropologists, but more specifically as humans) bear witness to, experience, represent, and stand up against the suffering of humans, other beings, and our shared environments?

In looking to rhythm as an analytic rather than as an object-for-anthropology, I am putting first the people with whom I work in New Ireland and their environment, for it is they whom I am most accountable. Rather than shining a light on a series of potentially new objects, I want to think about what it means and what it might do to situate the anthropologist in the scene of suffering while acknowledging that I/we/they may experience it differently than my/our/their interlocutors.

Rhythm, I argue, is instrumental as a means of bearing witness to socioecological changes in *deep spaces*—not just the self or psyche, but those spaces which have become practically or discursively "remote," and which can nevertheless be conceived as accessible beyonds; as nurtural histories. In one sense, by showing how bodies move back and forth in and out of Presence, rhythm as a metaphor can be useful in demonstrating the constructedness of the beyond. But as an analytic, it can be useful as a means of qualifying (and possibly quantifying) harm or suffering or disease in such spaces in ways that are intelligible across multiple audiences and accessible to multiple peoples.

In a foundational essay on the "anthropology of rhythm," medical anthropologist Haili You suggests "There is no unified theory of rhythm just as there is no single conception of time, body or life" (You 1994:361). And yet, she argues, "The concept of health or illness (and disease)

cannot do without the concept of time that is understood as social or visceral or symbolic or cosmic" (You 1994:361). Inasmuch as rhythm may be useful as an analytic through which the health, illness, or suffering of individual bodies or psyches may be understood, it might also be applied to collective bodies and to any such entity that, through expression or ascription, may be situated on a continuum of wellness or development: of places, environments, cultures, languages, and so forth—sites which not only express a status relative to some alternative state of being but can incur the violence that exceeds the limits of existence as such. Rhythm may be the instrument through which the heartbeat of such species and spaces can be heard.

One of the ways environmental anthropologists and geographers have approached violence to bodies (human and otherwise) and spaces (typically *environments*) is through *political ecology*. In offering a more nuanced view of ecological conflicts, complications, or outright disasters, political ecology moves beyond the positivism of prior cultural ecologies (Steward 1972, Rappaport 1968), attempting to show "what reality is being constructed, by whom, for whom, for what political purpose, and to what political effect" (Biersack and Greenberg 2006:14). Political ecology is "a sophisticated analysis of accumulation by dispossession that takes into account semiotics, governmentality, and the state when asking questions about environmental change and uneven development" (West 2012:241). By taking certain sites as its focal points, this approach attempts to situate the local within a world system or systems, and thus, provide a nuanced account of power as it operates through locally observable phenomena.

A major influence in political ecological theory, and indeed the first to speak of it as such was Eric Wolf, who in a 1972 response paper outlined a program of analysis which "eschewed a static analysis of jural rights" and "offered a processual view of ownership, in its varied ecological and social parameters" (Wolf 1972:201). Writing specifically with regard to the rules

of inheritance and property ownership, Wolf situates Marxist historical materialism in the contemporary, Wallerstinian world system:

> The property connexion [sic] in complex societies is not merely an outcome of local or regional ecological processes, but a battleground of contending forces which utilize rural patterns to maintain or restructure the economic, social and political relations of society. Thus capitalism progresses through the employment of jural rules of ownership to strip the laborer of his means of production and to deny him access to the product of his labor. The local rules of ownership and inheritance are thus not simply norms for the allocation of rights and obligations among a given population, but mechanisms which mediate between the pressures emanating from the larger society and the exigencies of the local ecosystem. [Wolf 1972:201-202]

Wolf acknowledged the existence of an "ecosystem" with its own rules, but those rules were not particular in the sense that their origin was insular to that system. Rather, local rules are "mechanisms" which mediate between socioecological particulars and a "larger" society. It is in property relations, Wolf argues, and in rules of ownership where capitalism emerges at the local level.

More recently, scholars have shown that environmentalism often emerges at the local level within property relations and questions of access, use, and ownership (Brockington 2002; Brockington et al. 2008; Bryant and Bailey 1997; Escobar 1998; Jacka 2015; Ogden 2011; West 2006; West et al. 2006). Political ecology, in its capacity to "examine and elucidate the ways in which multi scaled political and economic processes affect people living in rural and or biologically diverse areas" (West 2006; cf Katz 1995), not only locates power in rules and productions, but understands nature to itself be a production. Such a political ecology poses important questions of *Who's nature? For whom is it produced? Who benefits and who loses from such production?* In asking these questions, some political ecologists have focused specifically on liberal ideologies and neoliberal policies which, through a kind of humanistic altruism, aim to cultivate certain kinds of relations between people and their land (Buscher et al.

2012; Fletcher 2010; Igoe and Brockington 2007; Neves 2010; West and Carrier 2004). In consideration of neoliberal policies and "environmentalities" (Agrawal et al. 2005), capitalism and conservation have been shown to operate from a similar logic and at similar points of intervention (Davidov 2013), as have conservation and ecotourism (Buscher and Davidov 2013; West et al. 2004; Zerner 2000).

Through this literature, it is clear that political ecology effectively problematizes the notion of "environmental conflict." But looking to Solwara 1, we find a shortcoming of this approach that has to do with the political and discursive context in which it might be made applicable. As mentioned earlier, through specific narratives, the deep sea and the Solwara 1 site have been deemed remote from concerns of landownership. This is not just an assertion by the company, but a statement of juridical fact from the State. Under the Papua New Guinea *Land Groups Incorporation Act of 1974* (Amended 2007) and *Land Registration Act of 1974* (Amended 2007), filing a formal claim to land requires the formation of an *Incorporate Land Group* (ILG). Kalinoe (2001) refers to these groups as "customary corporations" which "are facilitated and given recognition by state law (as opposed to being created by such statutes), but their bases and structure are derived from traditional Papua New Guinean social institutions such as the clans or lineages" (Kalinoe 2001: see also Glaskin and Weiner 2013; Filer 2007; Tararia and Ogle 2010). Once formed, an ILG must produce a collective representation of their land, demarcating boundaries with lines and geographic points. They must also purchase space in the national newspaper to publicly advertise their claim. All of this requires collaboration, travel to a provincial center, and substantial expense. As the anthropology of mining in PNG has shown, for indigenous Papua New Guineans in particular, the demand to collectively formalize what are dynamic relations with the land and with their own histories often causes further conflicts within

the group itself. Even if it should it be filed in the appropriate manner, the formal association of an ILG with a particular polygon of cartographic space does not guarantee protections for everything within that space. Furthermore, the *Land Registration (Amendment) Act of 2007* only recognizes customary ownership of the first six feet of land below the surface. The State has rights to everything below that, be it gold, copper, oil or water.

In the deep Bismarck Sea, the *LGIA* and the *LRA* are politically irrelevant. When, in 1982, the State of Papua New Guinea ratified the United Nations Convention of the Law of the Sea (UNCLOS), a series of imaginary baselines which had been drawn earlier between the nation's outermost islands came to distinguish an "external" Exclusive Economic Zone (EEZ) from "internal" or "archipelagic" waters. National waters are not natural—they have emerged in relation to a larger, multinational ocean. As this happened, smaller but no less vital local seas were rendered dilute. Considering especially the ways in which indigenous inhabitants of the Bismarck Archipelago have related to these seas and everything in them for the past thirty-five thousand years, and how Mandak speakers in particular take as the grounds of their own existence the relational seas I spoke of in the preface to this dissertation, Papua New Guinea's declaration of independence in 1975 and their declaration of national waters mark the biggest "land" grab the country has ever seen. However, unlike terrestrial land grabs, there does not yet exist a specific legal framework through which to contest a grab of seabed and all the resources and potentials that lie within.

Therefore, I think a Marxian political ecology which takes property relations as the point of intervention through which capitalism and other global processes encounters difficulty in spaces that by national law appear to be "remote." Legally, the Bismarck Sea belongs to the state. As of now, it is out of range of state capacities for surveillance. At sea, there are not nearly enough

patrol boats to carefully monitor use, and certainly the PNG government has no submarines to monitor the actions of deep seabed miners. Nautilus Minerals plans to place trained "observers" on the mining vessel, but they will not place an *entire clan* onboard. The deep sea and deep underground have been separated from "the village" or "village life" through a sustained discourse of remoteness and through state law. Together, this constructed opposition has invited an influx of multinational mining corporations and anti-mining preservationists into the region while at the same time rendering the local opinions particular, subjective, and "sentimental."

What I am proposing here is a means of echoing ongoing Mandak assertions of sea tenure and sovereignty through a political ecology that rejects the binaristic logic of national, international, and corporate agreements. Rather than get caught up in questions of whose sea, or what sea—questions which in this particular context would place the burden of proof on local "cultural" actors—I am proposing a political ecology that is antiformalist in nature; that focuses on the rhythms by which relational forms come to exist as such, and that aims to account for the forces of acceleration or delay that bring objects into social existence at certain moments and in particular places.

Importantly, this needs to be done in a way that does not abstract lands or seas from lived experience, and which refuses to place further demands on indigenous peoples of the Bismarck Archipelago to render concrete what are otherwise complex and unformalizable socioecological relations. In the next section, I outline a means of stepping into Presence—a way of putting oneself into the theoretical inscription presented in the last chapter.

Repositioning the Anthropologist[2]

After early writings on the topic by Durkheim, Levi-Strauss, and others, Rhythm finds its most pronounced resurgence in the later work of Marxist philosopher Henri Lefebvre.

Throughout his career, Lefebvre's interest in Marx centered on the latter's notions of alienation and supersession. In his *Critique of Everyday Life* (1991a[1947]), Lefebvre attempted to realize the practical ambitions of Marxism in quotidian moments and things; in what Durkheim referred to as everyday life and what Leach (1961) classified as durational time. For Lefebvre, the everyday was not only the site of lost time; it was a battleground for time's reclamation. When he writes "Man must be everyday, or he will not be at all" (Lefebvre 1991a:127), Lefebvre demonstrates his interest in refiguring what Hegel called the prose of life—the "humble, familiar, everyday objects; the shape of fields, of ploughs" (Lefebvre 1991a:127), all of which in modernity were effaced by an overload of images and by the constriction of space at the hands of time. His critique of everyday life "is a dual reading, at once a rejection of the inauthentic and the alienated, and an unearthing of the human which still lies buried therein" (Lefebvre 1991a:xxiv). It is revolutionary only inasmuch as it is practical—as it puts the philosopher themselves on the ground to produce, and not merely analyze, new pasts, presents, and futures.

Lefebvre reiterates this idea of the centrality of the subject/analyst in his landmark work *The Production of Space* (1991b). He critiques the "split" theoretical treatment of space and time, which on one hand considers a duration divisible into moments and events, and on the other, an abstract space divisible geometrically. In what we might understand as a direct critique of a psychologically-informed sociology, Lefebvre argues that "Most if not all authors ensconce themselves comfortably enough within the terms of mental (and therefore neo-Kantian or neo-Cartesian) space, thereby demonstrating 'theoretical practice' is already nothing more than the egocentric thinking of specialized Western intellectuals—and indeed may soon be nothing more than an entirely separated, schizoid consciousness" (Lefebvre 1991b:24). He then proceeds to "detonate" this state of affairs by conceptualizing space and time together with subjectivity.

Space, Lefebvre argues, has a "dual nature" which consists of form together with its "internal self-'reflection' or duplicate of itself as its defining characteristic" (Lefebvre 1991b:181). It also has a "dual general existence" (Lefebvre 1991b:182): In any society, it is conceivable through "spatial practice," "representations of space," and "representational spaces" (Lefebvre 1991b:40). The dual general existence of space along with the techniques and technologies of its production offer to the analyst an account of how space, once produced, comes to define and delimit ontological and epistemological possibilities. But this account can only be accessed if the analyst is also the subject. In other words, only if they "place oneself in the centre, designate oneself, measure oneself, and use oneself as a measure" (Lefebvre 1991b:182). In one sense—synchronically—Lefebvre's analyst achieves a social status and a public identity; they are positioned in space through existence in time. In another sense, this subject/analyst simultaneously encounters space as a force of mediation through which their apprehension of anything and everything else must pass. "This," as he suggests, "tends to turn social space into a [more or less] transparent medium occupied solely by light, by 'presences' and influences" (Lefebvre 1991b:183).

What Lefebvre writes next bears immense implications for his later work on rhythm and my own idea of Presence, and so it is worth quoting at length here:

> On the one hand, space contains opacities, bodies and objects, centers of efferent actions and effervescent energies, hidden—even impenetrable—places, areas of viscosity, and black holes. On the other, it offers sequences, sets of objects, concatenations of bodies—so much so, in fact, that anyone can at any time discover new ones, forever slipping from the non-visible realm into the visible, from opacity into transparency. Objects touch one another, feel, smell and hear one another. Then they contemplate one another with eyes and gaze. [1991b:183]

He continues with remarks that tell us much about the precarity of truth in this contemplation, and the generative capacity of emplacement within and alongside space in its multiple configurations:

> A mere change of position, or a change in a place's surroundings, is enough to precipitate an object's passage into the light: what was covert becomes overt, what was cryptic becomes limpidly clear. A movement of the body may have a similar goal. Here is the point of intersection of the two sensory fields. Were it not for this dual aspect and natural/social space, how could we understand language itself? 'Nature' can only be apprehended through objects and shapes, but this perception occurs within an overall context of illumination where bodies pass from their natural obscurity into the light, not in an arbitrary manner but according to a specific sequence, order or articulation. [Lefebvre 1991b:183]

While notions of bringing anything "into the light" reek of the kind of dominant and disciplinary truths imposed on subjects in the historical Enlightenment, I want to argue here that his use of this metaphor implies what Donna Haraway (1988) refers to as "situatedness" in the process of knowledge production. This is not a transcendental methodology, but one in and of Presence wherein the analyst emplaces their individual body, exposing it to deprecation, corrosion, and attack, and ruin. Insofar as it reveals aspects of objects from which states or modes of engagements may follow, it is objective. But likewise, because the analyst is making the judgements, doing the gazing and listening, it is subjective. At the nexus of this dual epistemology is the body, and it is out of the sensing (and sensed) body's emplacement that differences emerge as the grounds of practical knowledge.

> Space—*my* space—is not the context of which I constitute the 'textuality' instead, it is first of all *my body,* and then it is my body's counterpart or 'other', its mirror-image or shadow: it is the shifting intersection between that which touches, penetrates, threatens or benefits my body on the one hand, and all other bodies on the other. Thus we are concerned, once again, with gaps and tensions, contacts and separations. Yet, through and beyond these various effects of meaning, space is actually experienced, *in its depths,* as duplications, echoes, and reverberations, redundancies and doublings-up which engender—and are engendered by—the strangest of contrasts: face and arse, eye and flesh, viscera and excrement, lips and teeth, orifices and phallus, clenched fists and opened hands—as also clothed *versus* naked, open *versus* closed, obscenity *versus* familiarity, and so on. None of

> these oppositions and conjunctions/disjunctions has anything to do with a logic or formal system. [Lefebvre 1991b:184]

Read with Clay (1977) and Strathern (1988) in mind, this is a clear critique of structuralism. Spatial differences have little do with with logic or a formal system, but are produced through positioning in a spatial medium that is itself produced of a kind of elusive infinite—a past and a distant pluraverse to which the subject/analyst has little access. What we can experience is the reflective surfaces of things, not their unseen depths.

Figure 9: Lantain Sombui through the Heat of a Mumu

From Lefebvre's work on spatial production and these "architectonics," we find the theoretical conditions and the impetus for the construction of a method that is at once social *and* ecological. Seen proximally, "An already produced space" Lefebvre writes, "can be decoded, can be read" (Lefebvre 1991b:17). Two forms, subject to each other, are positioned within space,

and their interaction occurs through the medium of already-produced space. Truth (which is always subjective truth but truth nevertheless) emerges, itself allowing new forms and new visions to appear. However, because the existence of both subject and object rely on each other and on space itself as a medium of relationality, they are always at risk of an epistemological death. Should the other turn away, or should the space be rendered opaque (if they were underwater, or asleep, for example), the two would find themselves separated by an abyss of space and time—each being cast into the shadows from which they may or may not emerge again. This, of course, is only a metaphysics bearing no truth in itself; it is a retroactively conceived origin story for the kind of revolution Lefebvre has in mind. Taken in one direction, it might indicate the existence of certain "epistemic communities" (Haas 2015) who might then be ascribed difference. But this kind of intellectual alienation is exactly what Lefebvre was attempting to "detonate" by placing together structuralism with phenomenology in the space of the everyday. It is only by being present to emergence that the products of that emergence can be read, those forces which brought them into the present revealed, and then acted on.

The Derivé

For Lefebvre, it was not enough to theorize presence and the production of space. Later in life, he returned to his early work on everyday life in an attempt to materialize the kind of change that abstract thought or poetics alone could not accomplish. To a large extent, this return drew on his collaborative work in the late 1950s and 1960s with a group that called themselves the Situationists. Led by Guy Debord, whose own writings would cross-pollinate with Lefebvre's (see Debord 1995), the Situationists aimed to refigure the world through changes to individual thought and practice. Like Lefebvre, who for a time was their muse and compatriot, the

Situationists looked to the poetics of Baudelaire for guidance. With Baudelaire, "and with him alone," Lefebvre would write,

> the marvelous takes on a life and intensity which were totally original: this is because he abandoned the metaphysical and moral plane to immerse himself in the everyday, which from that moment on he will deprecate, corrode and attack, but *on its own level* and as if from within. His insight into man's failures, his duality, his loneliness and ultimate nothingness is not merely intellectual, it is intensely physical [Lefebvre 1991a:106].

The Situationists envisioned an intensification of this duality, that when taken to the extreme, "reveals…a confused unity—not conciliation, or synthesis, or supersession, but more of a scholarly confusion where contradictions are resolved through a painful, relentless struggle so intense that it leaves the mind in ruins" (Lefebvre 1991a:107). It is important to note that while much was theorized about everyday revolution, and in May 1968, much of their thought was put to use, the work of the Situationists hardly resulted in the kind of large-scale historical changes envisioned by Lefebvre throughout his career. However, this is not to say their work bore no fruit.

In the December 1958 edition of *Internationale Situationist,* Guy Debord penned an article that would influence what Lefebvre would come to call the "rhythmanalytic" method. Debord's article outlined a practice he and fellow Situationists referred to as the *dérive.* Meaning "to drift" or "drifting," the dérive involved "one or more persons during a certain period" who would "drop their relations, their work and leisure activities, and all other usual motives for movement and action, and let themselves be drawn by the attractions of the terrain and the encounters they find there" (Debord 1958).

The path of one's dérive was less influenced by chance than by "psychogeographical contours, with constant currents, fixed points and vortexes that strongly discourage entry into or exit from certain zones" (Debord 1958). Encountered for a period of hours, days, or in a

legendary extreme, for "three or four months straight," such contours "unaccompanied with anything else…[are] dangerous to the extent that the individual, having gone too far (not without bases, but…) without defenses, is threatened with explosion, dissolution, dissociation, disintegration" (Chtcheglov 1963: 38). Taken too far, in other words, one may lose themselves in the journey. There is risk in this endeavor "of a scholarly confusion where contradictions are resolved through a painful, relentless struggle so intense that it leaves the mind in ruins" (Lefebvre 1991a:107).

But with this risk comes the potential for reward: Debord employs a series of ecological metaphors to show how one's exploration of the city may reveal the existence of "microclimates" and "psychogeographical pivot points" through which "distances that actually separate two regions of a city" may be measured, "distances that may have little relation with the physical distance between them." The dérive is a mode of immanent cartography: one's physical presence in the scene establishes a means of of "delineating changing architectures," and not merely "stable continents" (Debord 1958). It offers not only personal therapy to the practitioner/patient, allowing them to reenter alienated terrain, but also a kind of empirical objectivity through which political-ecological forces can be critiqued. One puts their body and mind at risk, and in doing so, finds truth as a swimming shark finds its prey—through perception and participation in changing currents, vortices, and attention toward traces of blood in the water.

Rhythmanalysis

In one of his last books, Lefebvre combined his ideas about presence and production with this notion of the *dérive* into an ambitious manifesto. In *Rhythmanalysis: Space, Time, and Everyday Life* (2004[1992]), Lefebvre sought to produce "new field of knowledge: the analysis of rhythms; with practical consequences" (Lefebvre 2004:4). Asking first "What is rhythm?

What do we understand by it, be in in everyday life, or in the established sector of knowledge and creation?" Lefebvre attempts to see the "critique of the thing and the process of thingification (of reification) through to its end" (Lefebvre 2004:4).

He starts with rhythm—that which is "most concrete" (Lefebvre 2004:4). Like nearly everyone who has written explicitly on the topic, Lefebvre admits difficulties and obscurities inherent to a study of rhythm. But he nevertheless attempts to found a "new science" with rhythm at its core. Essentially, he argues, rhythm emerges in time and space through repetition which gives way to difference. Considered abstractly, the repetition in time of unity in space gives way to difference in space, and through that, to new or revised sense of duration. Empirically, this emergence can be encountered in linear or cyclical form, which, while they may be distinguished in analysis, but in reality "interfere with each other constantly" (Lefebvre 2004:7). Never content with metaphysics, Lefebvre adds a third aspect to this seemingly holistic ecology: *measure*. While "rhythm seems natural, spontaneous, with no law other than its unfurling…it always implies a measure. Everywhere there is rhythm, there is measure, which is to say law, calculated and expected obligation, a project" (Lefebvre 2004:7).

Lefebvre's own rhythmanalytic project approaches the material world as the psychoanalyst approaches their patient, but with an important difference. Faced with the difficulties encountered by the psychoanalyst when he "listens out," the rhythmanalyst decidedly abandons any effort to "render oneself passive, forgetting one's knowledge, in order to represent it in its entirety in the interpretation" (Lefebvre 2004:18). Instead, "he listens—first to his body," so that he might build a repertoire of base rhythms from which he can then come to appreciate rhythms external to him. While the psychoanalyst attempts to build interpretations of that which is concealed inside of the form of the patient, the rhythmanalyst, in "using his own body as a

metronome," (Lefebvre 2004:18) obviates this duality in their object. What is expressed on their outside and concealed within is taken as a whole, measured and made-measurable against the rhythmanalyst's own heartbeat, breathing, and so on.

The rhythmanalyst is thus engaged with their object, who is not really an object but more like a muse-ical assemblage out of which images of the whole may be generated. What is observed is changed by the presence of the rhythmanalyst who does the observing (or listening). This is not an effacement, but more of a critical gesture which "sets in motion" certain rhythms so that their source of inspiration can then be known (Lefebvre 2004:25). Just as a teacher knows their material best through teaching it, the rhythmanalyst comes to terms with the forces which propel history by themselves producing it. When Lefebvre explains how "Historical times slow down or speed up, advance or regress, look forward or backward. According to what criteria? According to representations and political decisions, but also according to the historian who puts them into perspective" (Lefebvre 2004:14), he reveals an explicit link between the production of subjects, the production of knowledge, and power. The object is not only historical (in the sense that they are situated in time); they *are* history—at once an expression of it and the grounds of its expression by the historian. Thus, it is through epistemological encounters that formal change can be experienced rhythmically. Lefebvre writes,

> Objectively, for there to be change, a social group, a class or a caste must intervene by imprinting a rhythm on an era, be it through force or in an insinuating manner. In the course of a crisis, in a critical situation, a group must designate itself as an innovator or producer of meaning. And its acts must inscribe themselves on reality. The intervention poses itself neither militarily, nor politically nor even ideologically. Occasionally, a long time after the action, one sees the emergence of novel. Perspicacity, attention and above all an opening are required. [Lefebvre 2004:14]

That opening largely occurs in moment of Presence, which I defined in Chapter Two as a moment of mutual, emplaced attention between the analyst and their object, and implies either

chance or perspicacity. Through rhythm, or more precisely, through the mutual emplacement of rhythmic bodies, historical interventions can be experienced personally, even viscerally, through differentials of speed relative to one's own corporeal rhythms. To the rhythmanalyst, Lefebvre writes,

> Nothing is immobile. He hears the wind, the rain, storms; but if he considers a stone, a wall, a trunk, he understands their slowness, their interminable rhythm. This object is not inert; time is not set aside for the subject. It is only slow in relation to our time, to our body, the measure of rhythms. An apparently immobile object, the forest, moves in multiple ways: the combined movements of the soil, the earth, the sun. …The object resists a thousand aggressions but breaks up in humidity or conditions of vitality, the profusion of minuscule life. To the attentive ear, it makes noise like a seashell. [Lefebvre 2004:20]

"The act of rhythmanalysis" he writes, "transforms everything into presences" (Lefebvre 2004:23). To do a rhythmanalysis is therefore to compose space and time (or spacetime) through one's immersion in it.

For Lefebvre, however, that immersion must itself be measured. The rhythmanalyst, "In order to grasp and analyze rhythms" must necessarily "get outside them, but not completely: be it through illness or a technique". This is necessary for "a certain exteriority enables the analytic intellect to function" (Lefebvre 2006:26). Lefebvre, as much as he writes of immanence, conserves an element of remote objectivity. Like those engaged in the dérive who must at times, for reasons banal or vital, remove themselves from the scene, the rhythmanalyst must withdraw themselves from the "multitudes of passers-by" (Virilio 1991), either by positioning themselves in certain ways or simply by ending one's attention. They must deliberately, if arbitrarily, break the flow so they might maintain their orientation when they reenter back in. In other words, they must attempt to maintain their own rhythm so other rhythms may continue to be known as they are. The science of rhythmanalysis and the knowledge it produces depends on one's own movement.

Return to Tembin

After two weeks of archival research and interviews in Kaselok village and the town of Kavieng, I decided to return to Tembin. Still thinking about rhythm but uncertain how it might resolve the problem of "community"-based research, I arranged space on the back of a public truck and traveled the long journey to the village. After two flat tires and numerous diversions, we finally arrived in Tembin, eight hours after our departure. I squeezed myself out of the back of the truck, shouldered the ten-kilogram bag of rice I had brought with me, and slowly trudged up the muddy path to the guesthouse.

There, like most nights, Daniel was sitting on the stony ground next to a smoldering log and smoking his pipe. His grandchildren were all sleeping, the sea was calm, and the place was quiet. As I approached, tired and dirty from the road, he glanced up and asked, "Patrick…*U pas Mia*?"

The following morning, I awoke long before the sun and lay in bed. For a brief moment I dreaded the coming hours and the kind of unanswerable questions they would bring. But then the unique beauty of rural daybreak took over. With unbridled excitement, the adolescent rooster who lived in a hollow of a seaside *mamau* tree cocked its head back and screamed its staccato song into the misty morning air. Its sharp cry began a slow crescendo of village life that would build throughout the day. First the hens ruffled their feathers, murmuring involuntarily with each flap of their wings. Then one of the dogs began to howl, and encouraged all the other dogs to do the same. Soon a child giggled, and then others.

As the first rays of sun shone over the island's interior, the chorus of crickets and treefrogs that dominated the evening soundscape grew quiet and gave way to birdsong. Still in bed myself, I imagined each of these nocturnal singers crawling into their own leafy beds and

shutting out the daylight. Soon, more children began to laugh, louder and louder, until one of their number suffered some minor insult and began to wail. Daniel groaned a prolonged "*heyyy,"* and the crying stopped.

Figure 10: The West Coast Road

Until that morning, I had been consumed by questions of method—first of how I might maintain my original objectives, and then, after my two-week interlude in Kaselok, how rhythm might become part of the project. Lying there in bed and listening to the dawn chorus through the open window, I had a new appreciation for rhythm, for it was all around me. The high-pitched notes of the tree animals growing silent and being replaced by squeals of chickens and children. Someone coughing. Joanna and Turisen preparing rice in thin metal plates and tea in a charred kettle. The sea droned on, its waves breaking from north to south, and north to south

again and again until it sounded like they were not coming ashore at all, but circling around my head. Rhythm was everywhere. It was as if I saw the world now by hearing it, and what could be heard revealed more about social and political relationships then seeing ever could.

My problem was no longer exclusively about method, for now I could study relationships between humans and myriad other beings by just being present to them and listening (literally and figuratively) to the kinds of sonic residues they cast into the air. Now I began to think about representation. The more time I spent "in the field," the more I felt obligated to produce something. Weeks earlier, my hosts in Tembin and in Kaselok had asked, "What do you want to take home?" And with each day away from my own family, the stakes grew higher that something would evolve out of this prolonged adventure. Beyond this were my obligations to my university, funding agency, and my advisory committee, all of them weighing heavily now more than ever.

I had given up on earlier attempts to codify these social rhythms into music. But could they be written as prose, as Lefebvre and Catherine Regulier attempted in the final chapter of the rhythm book? Something seemed amiss in their rhythmanalysis of a typified Mediterranean town. Theirs seemed to be an ethnographic picture painted with new brushes, but a picture nevertheless. What had never changed in my own motives was my desire to paint a picture, not *of* social relations in the Bismarck Archipelago, but *for* people living there. What was missing in the *Rhythmanalysis* book was this obligation to the objects of the authors' inquiry. What, I wondered, was at stake as they wrote with a "view from the balcony?" What favors did they receive from others—from the people, the land, the buildings, and the sea? To whom did they owe their representation?

The essential Mediterranean town of which they wrote certainly bore a long history of conflict, but that history seemed detached from the place. At most it was embedded in architecture and everyday habits, from where it rendered an inevitable future. The west coast of New Ireland, bordered by different seas, had its own history. But it was precisely that history that was being questioned with the arrival of seabed mining. In spite of the fact that for Mandak speakers, everything is said to come from the sea (be it sharks or taro or foreign tourists), and people's daily lives involve travel through and across that sea, the mining company still claimed there were no landowner issues involved with their project because no one (save the occasional "traditional sharkcaller") lived there. History is harder to see where no ruins are seen to stand, but that is not to say it doesn't exist. One may do their *dérive* through the ocean, but that requires a risk many are unwilling to take. The risk is social as much as it is personal.

Marking Time/Producing Space in the Pacific

Pacific Islanders have become experts in such voyages. For at least five thousand years, people have been moving between mainland PNG, the islands of the Bismarck Archipelago, and further seaward through Melanesia, Polynesia, and the Americas. Through intrepid sea voyages and now increasingly by air, what Epeli Hau'ofa referred to as the "sea of islands" (Hau'ofa 1993) has materialized through repeated risks, interminable sacrifices, and ongoing exchanges of knowledge, goods, services, and nurture. Essential in these voyages has been the capacity for critical evaluation of conditions and a sense of when to move—similar, I think, to what Lefebvre referred to as "perspicacity, attention, and above all an opening" (Lefebvre 2004:14). In Pacific terms this kind of skilled movement has come to be generalized as *wayfinding*.

Master-navigator Nainoa Thompson describes wayfinding as "a very old, simple system of navigation that many cultures have used. It's basically taking the surrounding natural signs—

whatever they might be for that particular culture—to help guide them in terms of their need to understand the world and be able to travel on it" (N. Thompson 2016). It involves, most obviously, a departure and an arrival, the latter which is made possible through an ability to hold course and estimate speed. Together, these enable a basic sense of duration and distance, which when combined with the ability to read the environment enable the navigator to make informed decisions. The lives of the crew and the vessel depend on this attentive and informed movement. For Thompson, who during the time of my research had departed Hawai'i aboard *Hōkūle'a, (*a *wa'a kaulua* or double-hulled voyaging canoe) on a global circumnavigation, wayfinding is a matter of transformative education, environmental stewardship, and cultural revitalization.

The risks associated with these rewards are obvious when we consider the perils of a prolonged sea voyage. But also dangerous are voyages through land and history. Knowledge and the cultivation of booth "rooted" and "routed" (Tengan et al. 2010) Pacific ontologies and epistemologies comes with its own risks. Hawai'ian scholar Ty Tengan describes the risk incurred by participants in the *Hale Mua* men's movement, who like sea voyagers moved toward a goal that was "intentionally ambiguous" while placing their own modesty and masculinity at risk (Tengan 2008:58). Decolonial practice, as much as it involves perspicacity and attention, involves placing one's body in the flow of time. Citing Hawaiian historian Kame'eleihiwa's (1992:22-23) image of "the Hawaiian [who] stands firmly the present, with his back to the future, and his eyes fixed upon the past," Tongan scholar Tevita Ka'ili suggests "Moanan[3] cultures predominantly arrange time and space by locating the past as the time in front, the present as the time in the middle, and the future as the time that comes after or behind" (Ka'ili 2017:36). To the extent the body is central in this arrangement, its existence is precarious: From

the perspective of others, it might move into the past as an island sea-mark or a star is said to pass by a canoe—not departing forever, but moving aft along the horizon.

Ka'ili, in *Marking Indigeneity* (2017), applied the philosophical work of fellow Tongan Ōkusitinu Māhina (1993, 2001, 2004, 2010) to describe how Tongans living and working in Hawai'i mediate contemporary sociospatial conflicts by "symmetrically rearranging *tā* and *vā* to mark indigeneity*"* (Ka'ili 2017:4). This comprehensive process, both ontological and epistemological, is known as *tauhi vā,* and aims to create "beautiful sociospatial relations" (Ka'ili 2017:5). To me, Māhina's and Ka'ili's lucid descriptions of *tā* and *vā* offer a critique of what I see in Lefebvre's rhythmanalytic method as an avoidance of ontological risk, and consequently, an inability to articulate rhythm in an environment which is predominantly oceanic in culture and nature. Seen on the surface, *tā* signifies time while *vā* signifies space. But this is not Cartesian time and space.

Rather, Ka'ili defines *tā* verbally and ontologically: it means "to beat, to mark, to form, or to perform…*tā* is the time marker that marks time with beats, markings, or social acts" (Ka'ili 2017:25). *Vā* is not merely space; "it signifies a relational space between two time markers. It is a space that is fashioned through the relationship between time markers—beats, things, or people. Furthermore, *vā* signifies the nature of the relationship"—be it distant (*vāmama'o*) or short (*vāofi*) (Ka'ili 2017:26). While the latter exists between and relative to two or more time markers, those time markers actively "create tempo, beat, pace, rhythm, and frequency" (Ka'ili 2017:25). The beating of a drum—in both metaphorical and instantive sense—creates the punctuation by which space (or silence) between beats can be known.

The idea that people are *vā* (time markers) demonstrates that through movement, and through positioning in space, one produces space as the distance between others. That space has

a value that is itself not absolute, but which is negotiated by those at either end of it. What may be symmetrical is achieved and becomes intelligible as such through all-night conversations, funeral preparations, and collaborative work of all kinds. The production of such spaces and knowledge of them requires presence, but also, it also involves a fortuitous or determined withdrawal. Yet unlike in Lefebvre, that withdrawal need not entail an ontological separation; it is not to preserve the risk of one's own way of being, or to avoid having one's mind be left in ruins. Rather, it is a being-away that produces space in-between. It is a way of knowing the world by moving through space and looking backward into the future. Likewise, neither wayfinding nor tauhi vā nor the ocean itself are symbolic markers of a pan-Pacific indigeneity. They cannot be abstracted from the peoples who practice them in daily living; who have come to develop sophisticated theoretical and critical interventions that are grounded in specific, historical, and enduring movements.

Summary

While Nautilus Minerals has argued that their Solwara 1 project is "friendly" to the environment, and that "the only thing that is down there are snails," people in New Ireland know that the project "is not good." From where does that knowledge come? Is it from being in the sea and seeing with their own eyes that there are more than "just snails" down there? Is it through analogy with places like the Arctic, which as remote as it may seem, supports life too? (Aini 2015, personal communication). Is it common sense that strip-mining a submarine volcano might not be a good idea? It is all of these and more.

While it might be helpful to describe and deconstruct the discursive and historical factors that produced Solwara 1 as remote, while I actually present in New Ireland it was more important to reciprocate the obligations I had already incurred and continued to incur with each

passing day. Present there, critique gave way to a pattern of simple sociality—through waking up, doing some kind of productive work, going to sleep, departing to Kavieng and later to America, returning again and again, and through this movement, becoming a time-marker—a *tā,* which through my own movement in and out of place, allowed my hosts and I to imagine and navigate a *vā* of our own. Whether that was or still is symmetrical is a constant question.

As I lay there in Tembin that first morning after my return, I realized that at some point I had to get out of bed, start the day, and begin my project from scratch. From then on, my work was determined by Daniel and the family to be that of a "student" (M: *a lok a lare*—"I sit and learn"), not a community-based researcher. From discussions with my host-family and their clans, I realized that what people wanted were transcriptions of Christian prayers from spoken Mandak into written Mandak, Tok Pisin, and English. Together with Conrad, I was happy to do this. Over the next few months, while others were out gardening and going about their daily lives in town or at sea, we created a Mandak-English phrasebook, catalogued flora and fauna with Mandak names, assisted with building projects here and there, and participated in Church and customary ceremonies. Simply by moving through space and interaction socially, and weaving images and thoughts together with spoken expressions, I gained a sense of *Tembin* that exceeded what could ever be included on a map. This was the temporal Tembin, the musical Tembin.

In order to represent it, and to represent the kinds of problems and threats experienced by indigenous New Irelanders with the advent of seabed mining, I decided to create Presence as a kind of theoretical malangan—one which would not attempt to deconstruct reality by saying how things were, but would merely serve as a set of useful tools through which Solwara 1 could itself be understood as a marker of time. The results of that production can be found in the previous

chapter, and what follows in Chapters Four and Five may be understood as a rhythmic political ecology which uses these tools to assemble particular events, texts, persons, and ideas I encountered in New Ireland into an origin story of the world's first deep seabed mine.

Figure 11: Peeling Taro with a Clamshell

[1] "Boys" in New Ireland is a topic worthy of its own dissertation. The term refers to a group of men—young adult and older—who reside temporarily in a particular men's house (TP: *hausboi*), and work on any project that needs done, be it fishing or the construction of house, school, or fence. Some are unmarried, others formally separated from their partners, and others who are avoiding their partners or their home village for any number of reasons. Each carries with them a small, woven basket for betelnut and scant personal belongings, and a bushknife; each relies on the generosity of women for two or three daily plates of rice and *kumu* (TP: steamed greens).

[2] I borrow and adapt this phrase from Diaz (2010).

[3] Māhina (2010) uses the "indigenous-based, internally mediated name 'Moana' in place of the externally imposed label Oceania or, for that matter, Pacific." See also Ka'ili 2005.

CHAPTER FOUR: *DEEP SEABED MINING*

Where is this original homestead of life? Where hot volcanic exhalations clash with a circulating hydrothermal water flow…a place deep-down where a pyrite-forming autocatalyst once gave and is still giving birth to life.

-Gunter Wächtershäuser (1988)

In 2011, deep-sea biologist Cindy Lee Van Dover published a three-page comment in the journal *Nature* advocating "tightened regulations on deep-sea mining" (Van Dover 2011:31-33). Having studied life in the depths of the ocean for most of her career and experienced it firsthand as the first female pilot of the submersible *Alvin,* Van Dover presented a strong and timely note of caution to scientists, governments, and international agencies responsible for researching, permitting, and regulating activities in the deep sea. "Mining of mineral deposits at deep-sea vents looks set to begin in the next few years," Van Dover writes. "With commodity prices on the rise" and "lifestyles that depend on relentless demand for minerals and other resources," a turn to the deep sea for such resources is, in the eminent biologist's words, "likely to be inevitable" (Van Dover 2011:32-33).

In Chapters Two and Three, I argued that periodicity with regard to presence is a condition of (and for) enduring kinship. But kinship, understood in the Melanesian sense as a transactive bond between two persons, requires more than strict repetition; it requires *motive.* Another term borrowed from music theory (and distinct from *motivation*), motive involves inspiration, expression, and the initiation of expectation—a promise that when someone or something goes away, it will return again in the future. In becoming kin, emergent beings must reveal something of where they have come from, what they want, and a characteristic pattern of action that shapes how others relate to them and may relate to them in the future.

This future is most evident in "the inevitable." Whenever inevitability is invoked with regard to a specific being, process, condition, or event, it signals an impending return; an emergent expression. In spite of the fact that the extractive phase of the Solwara 1 seabed mining project has not yet begun, Van Dover's use of the term in her 2011 commentary indicates that deep seabed mining (DSM) and Solwara 1 as its global progenitor have already become part of social relations in the Bismarck Archipelago and further abroad. As an ebbing tide draws attention to the horizon, talk of Solwara 1 has drawn attention to the Bismarck Sea.

The *Nature* commentary its itself an expression with its own nurtural history. It is a time-mark (Ka'ili 2017)—the eventuation of a past voyage through which the production of space can be read. While on the surface this commentary appears to be *about* the deep-sea environment, it is *of* that environment too. By asking of it *U pas mia?* (M: from where have you come?), and asking who or what has accelerated or delayed its arrival into the present, we may learn something about the deep without having been there ourselves.

Van Dover's commentary is *of* this deep environment, but it is *about* DSM as an "inevitable" mode of human action. To those in New Ireland and to the scientific community, Solwara 1 has not yet revealed itself in full. It lingers on the horizon in the form of ships rising and falling in the waves; it remains hidden in air-conditioned offices in Kavieng and Brisbane. While it has not yet arrived on the beach, its arrival has been anticipated by the *Nature* commentary. Already, the commentary has contributed to what Solwara 1 will be *to us.*

Mass Spec

In Chapter Three, I argued that rhythms—the comings and goings of objects into view—can tell us something about "deep nature" only to the extent that they are experienced personally. One must be present in the field of action in order to ask and answer questions of force and

timing; they cannot remain "on the balcony" as Lefebvre had it, but must place themselves in the flow of things and forever lose sight of the exit. Once it begins, the oceanic *dérive* must never end.

There are, of course, limits to this. What if one should like to represent the knowledge attained through that experience in a way that transcends the particular? Not everyone with interest in the preservation of biological and/or cultural diversity (or more broadly, environments) has the time or access necessary to complete a long-term rhythmanalysis. Here the question becomes one of representation. Questions of force and timing might be known through rhythmanalysis, but can they be represented? Can the analyst represent on the unmoving page the political ecology of presence—the distant forces of modulation that make possible certain ways of being? The answer, I argue, is yes; but never completely.

Representation is in one sense just another act of expression, and the same rules still apply. For the expression to continue to exist as such, it must always conceal something of its own nurtural history, and it does this by containing it within itself. For the representation, that history includes a past encounter with its object, which may be alluded but never presented in full. The representation maintains its existence by presenting itself *as if* the encounter with its object never happened. It appears to us as an expression that has lost its shadow[1].

Can deep nature be known through Presence with representations of expressions, or presence *post facto*? Can the reader or re-viewer undergo the visceral and irremediable change that occurs when one is present to something like a mumu, and become part of a certain environment themselves? Can one's origin story include peoples, places, and events with whom they have never been physically present?

Telling the story of Solwara 1 in a way that is beneficial to Pacific peoples requires a means of describing deep nature in a way that does not require or demand fixed inhabitance in Pacific places. That itself requires imagination, for the ways in which emergent objects may engaged are limited by space and time. To the reader of this dissertation, the mumu I spoke of in Chapter Two is long-dead. It can no longer be consumed or inhabited, nor can it be intimately known in the way that people from Tembin knew it. Three of the four modes of engagement are impossible, but one remains. The mumu is no longer three-dimensional, but it still *glistens* (M: *sanxinxi*) in the space of this text and its appended timeline. Prolonged attention may be given to it, which enables a way of "remote sensing" of the environment out of which it has come.

"All objects," writes Mikhail Bakhtin, "open to dispute and overlain as they are with qualifications, are from one side highlighted while from the other side dimmed by heteroglot social opinion" (Bakhtin 2006:493). Attention, which for Bakhtin is materialized in the uttered word, reveals more about the object than that object might express on its own, for until attention is given to it, that object does not yet exist. When it is given, it can be understood metaphorically as a ray of light cast onto the emergent object. This action not only reveals the object as it has been attended (or *intended*), but reveals in a flash *all* of the ways it has been attended in the past.

> The living and unrepeatable play of colors and light on the facets of the image that it constructs can be explained as the spectral dispersion of the ray-word, not within the object itself, but rather as its spectral dispersion in an atmosphere filled with the alien words, value judgments and accents through which the ray passes on its way toward the object, the social atmosphere of the word, the atmosphere that surrounds the object, makes the facets of the image sparkle. [Bakhtin 2006:494]

This "atmosphere" that surrounds the object is I think another way of saying "environment," "nurtural history," "deep space," or "the beyond." Shining an epistemic light on an object—be it and expression or representation of a past expression—does not merely illuminate one aspect of

it. Far more than that, it makes visible a multitude of color-pathways in which that object (and one's attention toward it) has come to exist as such.

Bakhtin's metaphor illuminates a set of historical pathways that may be followed as a means of close listening—of knowing the answer to the question, *U pas mia?* Physical chemists refer to a similar technique as *mass spectrography,* or simply *mass spec,* and use it to determine the composition of unknown objects. But it can just as well be applied to either an expression *or* its representation. Upon following a number of these routes (or spectral pathways), it soon becomes clear that they do not diverge *ad infinitum,* but rather, can be seen to converge in distant sites. Insofar as the object acts as a glistening prism through which its historical spectrum can be revealed, it is conceivable that there are distant prisms from which so many colorful rays have emerged in the first place, each of which has been made to converge by some compositional force. Attention alone may converge them once again, forming *place* in remote spaces, and linking those present to remote sites in a vast network of kin.

This chapter follows two particular "colors" which emerge out of our attention toward Solwara 1. The first may be called *resources.* The second may be called *life.* With regard to resources, I describe how in dialogue about material/technological resources, hydrothermal vents have become valuable as forces of nurture for a particular way of being human in the present. With regard to life, I describe how in dialogue about scientific knowledge, the same hydrothermal vents become valuable as forces of nurture for a particular way of knowing about the human past. Together, *resources* and *life* converge in dialogue of "living resources." Through conversations about deep-sea "ecosystem services," hydrothermal vents become the sites of origin out of which a particular human future may come into being. This convergence is

expressed clearly in the *Nature* commentary, and so that provides a good starting and ending point in this investigation of the deeper political forces at work in the timing of Solwara 1.

By proceeding first through a history of hydrothermal vent exploration and regulation, and second, through a history of environmental policy which aims to safeguard life in the deep sea, I aim to reveal a historical and epistemological *last common ancestor* from which extraction and environmentalism have diverged, and which has opened up a conceptual horizon from where they now converge again. By examining this ancestor as a kind of time-mark and asking which forces cause it to speed up, slow down, skip backwards or ahead, we can know exactly why things have come to our attention in the present time, what they want, and what we should expect of them in the future. We can therefore ground our actions with a greater appreciation for the environment in question, for that environment, though remote, becomes sensible as a condition of our own possibility of knowledge and existence.

Deep Resources

In the *Nature* commentary, Van Dover situates her call for stewardship of deep-sea hydrothermal vent ecosystems in the context of Nautilus Minerals' receipt in 2011 of a "20-year mining lease by the government of Papua New Guinea for mineral extraction at a site known as Solwara 1 in the Manus Basin" (Van Dover 2001:32). The issuance of that lease, while it precedes my first visit to New Ireland by two years, is a good point of departure from which to begin a genealogy of the origins of deep sea mining as it is present today. What forces nurtured the lease at that particular time? Considering the decades-long duration of interest in seabed mining by multiple countries, why was the lease granted then? And why in Papua New Guinea? Here I want to argue that the issuance of the lease succeeded a series of past presences in which a trio of volcanic seamounts in the Bismarck Sea were made to resemble vacant and valuable land.

The Lease, technically known as Mining Lease 154 (ML154), was granted in accordance with Section 38 of the *Independent State of Papua New Guinea Mining Act of 1992* (henceforth, the Mining Act). The lease document was granted by the then PNG Minister of Mining, Hon. John Pundari, to Nautilus Minerals Niugini Limited (NMNL) on January 13, 2011, nearly twenty-seven months after NMNL submitted their application for it. ML154 pertains specifically to an area defined as:

> The area of land over which the tenement has been applied for is bounded by:
> a line starting at 3°45'15.618"S 152°7'52.296"E
> then to 3°45'15.282"S 152°4'00.966"E
> then to 3°49'45.042"S 152°4'00.648"E
> then to 3°49'45.156"S 152°7'52.188"E
> then to 3°45'15.618"S 152°7'52.296"E
> being the point of commencement, comprising an area of 59.115 sq km.
> [PNG 2011:1]

On a map, the interconnected points form a two-dimensional polygon, within which is enclosed 59.115 square kilometers of "land." While it may seem problematic that the area referred to in company literature as Solwara 1 (ostensibly for its watery nature)[2], is referred to in the lease as "land," it is important to consider the way "land" is officially defined and demarcated in state law. In the Mining Act, "land" includes:

> (a) the surface and any ground beneath the surface of the land; and (b) water; and (c) the foreshore, being that area between the mean high water springs level of the sea and the mean low water springs level of the sea; and (d) the offshore area being the seabed underlying the territorial sea from the mean low water springs level of the sea to such depth as admits of exploration for or mining of minerals; and (e) the bed of any river, stream, estuary, lake or swamp; and (f) any 'interest in land. [PNG 1992]

In order to obtain the Mining Lease for the area that would become *Solwara 1*, Nautilus was required by Papua New Guinea law to fulfill several obligations to the State. First, the company was required to apply for an *Exploration License* in accordance with *Section 20* of the Mining Act. In applying for this license, interested parties are required to formalize what will

eventually become a mining "tenement" by first identifying a number of contiguous "blocks" as their space of operation. According to *Section 153* of the Mining Act, State land (and indeed the whole planet) can be represented as a series of these blocks.

> For the purposes of this Act, the surface of the Earth shall be deemed to be divided into graticular sections:—(a) by the meridian of Greenwich and by meridians that are at a distance from that meridian of five minutes, or a multiple of five minutes, of longitude; and (b) by the equator and by parallels of latitude that are at a distance from the equator of five minutes or a multiple of five minutes, of latitude, each of which is bound; and (c) by portions of two of those meridians that are at a distance from each other of five minutes of longitude; and (d) by portions of two of those parallels that are at a distance from each other of five minutes of latitude. [PNG 1992]

The authors of the Mining Act, in recognizing the need for further specificity, divide these blocks into twenty-five "sub-blocks," each of which represent one square mile of space[3]. In order to begin exploration activities as a nationally recognized corporation, NMNL was required to adhere to this system and aggregate a number of such sub-blocks into a proposed tenement of not more than 750 contiguous sub-blocks. When on November 28, 1997, the company was formally granted an Exploration License, nearly sixty square kilometers of submerged "land" in the Bismarck Sea were bound together and born into the world as "EL1196."

In terms of rights, the issuance of EL1196 to NMNL was a momentous event. An Exploration License entitles its holder "to the exclusive occupancy for exploration purposes of the land in respect of which the exploration license was granted" (PNG 1992:Sec.23). Together, the rights to occupy, use, and exclude use as granted in the Exploration License structure the obligations necessary by which a Mining Lease and national and international financing are secured.

The SuSu Knolls

Nautilus Minerals is a public company, first offered on the Toronto Stock Exchange in 2006. Today, the company owns NMNL as well as a subsidiary in Tonga. But it was the smaller company, originally called Nautilus Minerals Limited, that was incorporated first in 1995, a full twenty years before my own arrival in New Ireland. The story of that incorporation involves a small circle of colleagues in a globalized mining industry, a chartered research vessel, and a fortuitous opening.

Significant hydrothermal activity was first identified in the eastern part of the Bismarck Sea 1991 during an oceanographic research cruise referred to as PACMANUS 1 (Papua New Guinea Australia Canada Manus basin) (Binns and Scott 1993). Onboard the Australian research vessel *Franklin*, Ray Binns of the Australian Commonwealth Scientific and Industrial Research Organization (CSIRO) and Stephen Scott of the Marine Geology Research Lab at the University of Toronto spent eight days mapping the seafloor. Behind the ship, they towed an echo sounder—an acoustic device used to determine seafloor depth, contour, and density. On occasion, they suspended a 35mm video camera in the water, lowering it down to a position just above the bottom to obtain color video of any anomalous features. Additionally, they sampled the seawater at different depths for temperature and mineral content, and dredged up material from the bottom in forty separate hauls (Binns and Scott 1993:2226-2227).

This was not the first time the area had been mapped. Prior to PACMANUS 1, the area had been surveyed using various kinds of sonar (Taylor et al. 1991) during an expedition known as *Aquarius* (Sakai, 1991). With these rudimentary maps in hand, the R/V Franklin sailed to the site just west of New Ireland to investigate reports from prior voyages of thermal and chemical anomalies (Craig and Poreda 1987; Crook et al 1990; Sakai 1991). To the geologists, the site

which they would name the "eastern Manus volcanic zone" not only represented the potential for hydrothermal vents, but represented the chance of valuable ore which for decades has been known to be associated with such geologic features. As Binns and Scott remarked, "by virtue of its location behind an active island arc and especially its felsic volcanic affiliation, the occurrence represents a close analogue for many ancient volcanogenic massive sulfide ore environments" (Binns and Scott 1993:2226). In simpler terms, this means that the area appeared similar—both geographically and geologically—to other areas in the deep ocean where valuable ore had been identified in the past.

Dragging their bathymetric equipment and camera, the crew of sailors and scientists aboard *R/V Franklin* closed in on several specific areas. When the video camera bumped into the seabed unexpectedly, they hauled it up and saw in the footage and on the hard case of the camera the soot-black evidence of subsea chimneys—the sulfurous "black smokers" that had only recently been described by scientists. Here was evidence of hydrothermal vents; and by association, evidence of gold, copper, and various rare minerals.

As oceanographic cruises go, time was limited to funding and weather. It was not until 1993, in the subsequent expedition known as PACMANUS II that a significant plume of dissolved methane and scattered sonar was found in a site in the far eastern part of the eastern Manus volcanic zone (Binns and Parr 1993). That site was investigated further in 1996 in the PACMANUS III expedition, and again in 1997 and 2000, revealing a flurry of activity in what is often a prohibitively expensive endeavor. The source of the plume was revealed to be a mountainous region nearly a mile under the surface of the Bismarck Sea. Binns and his shipboard colleagues named these volcanic triad the SuSu[4] Knolls (Binns et al 1997), which encompassed South Su, North Su, and their northernmost sister, Suzette. Each of the three

mountains have been described through bathymetric profiling as "steep-sided conical volcanic peaks" (Yeats et al. 2209). The crest of South Su is 1,320 meters from the surface; with North Su at 1,150 meters and the peak of Suzette at 1,520 meters. It is Suzette, the smallest, northernmost sister, that has become the prospective site of Solwara 1, the world's first seafloor massive sulfide (SMS)[5] mine. Following discovery of hydrothermal activity and associated sulfide mineralization at the SuSu Knolls, Ray Binns and his colleagues returned to their labs and began to analyze the consistency and grade of samples they obtained from the crests of the subsea mountains. During this process, Binns was visited by an Australian mining journalist named Julian Malnic, who interviewed him about the resource potential in the site of his recent research. As the story goes, Malnic photographed the samples Binns had obtained from the SuSu Knolls, and photographed the navigational charts which identified the location of the three mountains. When the journalist returned home, he utilized his own geological background to scrutinize the photos in more detail, and then mailed a mining claim to officials in Papua New Guinea. Soon after, Malnic obtained the first-ever underwater exploration claim to be granted in PNG (Davis 2007).

Five years later, Malnic had yet to convince investors of the feasibility of extracting the high-grade copper, gold, silver, and other minerals from the bottom of the sea. With his exploration lease in PNG still valid, he contacted his college friend David Heydon, another Australian. Years before, Heydon had traveled through Indonesia and spent time in an indigenous village. Noticing gold jewelry, he asked where it had come from. The place, volcanic like the SuSu Knolls, was rich with gold. Heydon realized he was the "first of many" that would come through this place. While he envied the "simple, happy" life of the villagers, he knew others would come and destroy that way of life (Davis 2007). Later, when Malnic

approached Heydon for participation and investment in the New Guinea venture, the sympathetic traveler saw DSM as an opportunity to obtain high grade minerals without the kind of social and environmental impacts inherent to open-pit mining on land. Quickly, he signed on. In 2002, Heydon purchased most of Malnic's interest in the venture, becoming its new CEO. Nautilus now had a name, a face, and a piece of "land" to call its own.

Under Heydon, Nautilus Minerals Limited (NML) intensified promotional, exploratory, and regulatory efforts. Suzette, and what would become eighteen other "Solwara" sites, were described in terms of their mineral grade (percentage of valuable ore found in chimney, drill-core, and sedimentary samples), and their geophysical location within the Exclusive Economic Zone (EEZ) of PNG. Samples were graded at 15% Copper, 3.4% Zinc, and 21 grams/tonne Gold (Heydon 2004; Golder Associates 2012), far higher than samples taken at terrestrial prospects. In a presentation to the newly convened International Seabed Authority (ISA), Heydon argued that polymetallic sulfide mining at hydrothermal vent sites like Solwara 1 left a smaller footprint than the mining of cobalt crusts or the collection of manganese nodules. In the content of his presentation, it is clear Heydon had both the environment and profit in mind. Not only do the Solwara series of projects offer this precise mode of extraction, but their location within the EEZ of PNG theoretically makes them less taxable than if they were to take place in international waters.

An Earlier Attempt

The first major political effort to mine a hydrothermal vent system occurred in the formative years of the United Nations Convention on the Law of the Sea (UNCLOS). In 1982, Fiji became the first of many states to ratify the new agreement. Part of that agreement, and certainly one of the most attractive parts for smaller coastal and/or island states, was the

provision of an Exclusive Economic Zone (EEZ) which extended exclusive rights to fisheries and mineral resources two hundred miles beyond existing territorial boundaries.

Already, seabed mining was on the horizon. But so too were fears that larger and wealthier states would have better access to deep mineral resources and would profit unevenly from what was described in UNCLOS as the "common heritage of mankind." To address this anticipated problem, the convention imposed an obligation on states who might engage in seabed mining to contribute a $500,000 fee as well as a significant portion of resource revenues back into an emergent *International Seabed Authority* (ISA).

The United States was one of the few states to *not* ratify UNCLOS. At the time, the Reagan administration had little to gain from what they saw as a "socialist" framework (Broad 1997). *Why give back to the international community what was earned with American capital, effort, and ingenuity?* Rather than ratify the convention in its entirety, President Reagan in 1983 signed Presidential Proclamation No. 5030 which effectively established a 200-mile zone around US territories while leaving the socialist provisions of UNCLOS on the table. By the stroke of a pen, and with the naval might to enforce it, the combined territory of the United States doubled in size. Not only did it stretch from "sea to shining sea," but now it stretched 200 miles further in either direction. Furthermore, islands that had been accrued in one war or another became the grounds of larger claims in the Caribbean and the Pacific, each now being encircled by an invisible zone of federal sovereignty at least 400 miles in diameter.

Part of the inspiration for the proclamation came from American fishermen in New England, who for years had been haunted by Russian and other foreign vessels on the Grand Banks. But there was more in mind than just fish. While the proclamation itself was intended to "advance the development of ocean resources and promote the protection of the marine

environment" (United States 1984:A28-29), accompanying literature confirmed that the proclamation came at a time when the discovery of polymetallic sulfides off the coast of Oregon presented a potential advantage to the nation in terms of production, export revenue, and national security (see J. Smith 1985).

Soon after this gigantic territorial acquisition, the US Minerals Management Service opened bidding for mining at a site known as the Gorda Ridge off the coast of northern California and southern Oregon. Plans were made to construct huge submersible bulldozers to flatten the delicate hydrothermal chimneys in successive excavations and send the ore up a pipe to a mothership for processing. It would work much like the process of mountaintop removal mining for coal, which had taken hold of Appalachia in the 1970s as a cheaper way of getting resources out of the earth.

The excitement surrounding the prospect was quickly dampened by anti-mining activism from both settler and Native American environmentalists. In hindsight, who could have imagined that such an experimental practice would succeed so close to the places where twentieth-century American environmentalism was born—to the rocks and waters that to John Muir were the words of God? In the face of this resistance, and also because the technology was simply not yet existent, plans to mine the Gorda ridge were shelved. As William Broad writes of the doomed rush, "the hot vents were no longer hot politically" (Broad 1997:265).

One of the major fallouts of all this excitement was the 200-mile EEZ, which in its American iteration was both a nationalist rejection of globalist governance of the commons and a statement to the world that mining *within* national waters may actually be less expensive than mining in the high seas, or what are now referred to as Areas Beyond National Jurisdiction (ABNJ). Not only is it cheaper to mine closer to land because it requires less transport distance

to ports for provisioning and processing, but it is cheaper for nations to access the resources within their own EEZ and avoid paying the contributions stipulated by UNCLOS. Should a nation have SMS deposits within their national waters, but not have the equipment and expertise to raise such resources from the seabed, they could contract with foreign entities to do so through the establishment of partially-owned subsidiaries. On the other hand, should a nation not have a SMS deposit within their EEZ, or should they have a deposit like Gorda Ridge that cannot be mined for political reasons, they may negotiate with foreign governments to do the work of mining in their territory while paying either royalties, dividends, taxes, social or humanitarian contributions, or some combination of these.

The Garden of Eden

The conditions of possibility of the failed Gorda Ridge project, and more broadly, of global interest in the territorial acquisition of areas of deep seabed, can be found in an earlier discovery of resources in an area in the eastern Pacific known as the Galapagos Rift.

In 1980, a team of geologists from the U.S. National Oceanic and Atmospheric Administration (NOAA) identified a mass of metallic sulfides topped by more than twenty "extinct" (or no longer venting) hydrothermal chimneys. They estimated the ore body beneath the chimneys to be 130 feet thick, 650 feet wide, and 3,280 feet long; the copper alone within the ore body would sell for around two billion dollars (Malahoff 1982, cited in Broad 1997:260). The principle geologist on the project, Alexander Malahoff, excitedly conveyed this fact to interests in Washington D.C. through successive articles in a special edition of the *Marine Technology Society Journal* (1982, Vol 16 [2,3]). A single sample from a chimney, Malahoff wrote, contained sulfur, iron, copper, silica, zinc, manganese, aluminum, selenium, cobalt, magnesium, molybdenum, lead, arsenic, barium, cadmium, chromium, phosphorus, mercury,

nickel, tin, vanadium, uranium, tungsten, and silver (Malahoff 1982). Concentrated in and among those elongate members was the "underpinning of modern industrial society" (Broad 1997:260).

When news of these findings reached the Reagan administration in 1982 through another article in *MTSJ*, this time by Secretary of the Navy John Lehman, it soon became clear that seafloor massive sulfide (SMS) deposits could become the backbone of modern industrial *America*. "Of the nearly two dozen strategic minerals on which America is now virtually wholly dependent on overseas sources," Lehman advised, "most could be provided from the seabottom" (Lehman 1982:3-6).

Before "seafloor massive sulfides" entered into geological lexicon, there were only "hydrothermal vents." The presence of hydrothermal vents in the deep ocean was anticipated years before the first vents were observed. The first signs of their existence occurred with the discovery of mid-ocean "spreading centers" and subsequent study of interactions between tectonic plates. Midway between the Americas and Africa, extending up to the North Atlantic, is a continuous mountain ridge far below the surface of the sea. The ridge is split along its middle by a valley composed of ferrous (iron rich) volcanic rock. By studying variation in the polarity of such rock at different locations, scientists were able to date samples taken from within the valley relative to others taken outside the valley, on the mountainous slopes, or further outward toward the continents. In doing so, they discovered that the basalts and other volcanic rocks in the valley and nearest the ridge were actually *younger* than those further to the east or west. This was the first sign that oceanic and continental plates were not only moving, but growing.

If the plates were growing in mid-ocean ridges, they must also be submerging in other places. Just as there were spreading centers, there must be oceanic "subduction zones," points of

convergence where one tectonic plate descends below another toward the fiery center of the earth. Scientists concluded that where this happened, heat would be released in underwater geothermal vents that were either pronounced (like the geyser Old Faithful in Yellowstone), or diffuse.

Initially, they towed submersible thermometers across the mid-Atlantic ridge in search of such thermal anomalies. During an initial exploration, the submersible *Alvin,* who was in the early 1970's already a superstar of ocean exploration, was nearly trapped with its three-person crew inside a subsea canyon. The pilot deftly wiggled the sub out from the rocks, and after a few more hours of exploration, returned to the surface with little to say about the problem of "missing heat."

Back on shore, the geologists and oceanographers decided on an alternative location that was more likely to host the hydrothermal venting. With collaborative funding from the National Science Foundation and the US Office of Naval Research, they traveled through the Panama Canal and headed toward the Galapagos Islands off the east coast of Ecuador. Towing sophisticated thermometers and cameras, they saw at first an abyssal plain devoid of interesting features. But midway into the cruise, the thermometer registered a spike in temperature in the otherwise frigid depths. The scientists, having also towed an automated camera, correlated this "thermal anomaly" with the photographs. What they found was astonishing, but for the moment, inconclusive. Deep under the surface, the camera had snapped photographs of dozens of white clamshells. In among them was a discarded beer can, an enduring sign of human presence in the oceans. The researchers concluded, half in jest, that the clamshells and beer had been tossed overboard from a naval ship. While that may have been interesting to the onboard crew, it did not explain the spike of higher temperature recorded by the thermometer (WHOI 2002).

When they returned to the site, they did so in person within the rigid titanium sphere of *Alvin.* Descending to the bottom, three of the geologists saw the clamshells once again. But they were not the discarded effects of a party. They were alive, and along with dozens of ornate tube worms, crabs, and other life, were *thriving* in the inky black depths. It was this vibrant life that guided the scientists and their submarine toward the object of their expedition: the hydrothermal vents of the Galapagos Rift. There, under the surface, was the missing heat, bursting up out of the core of the earth in clouds of black, sulfurous "smoke."

It is at this historic moment and at this specific site in the Eastern Pacific that two discourses present in the Van Dover (2011) commentary—that of deep-sea "life" and of deep-sea "resources"—are present again. Only then, in 1977, their presence marks a place far remote from the SuSu Knolls, and is expressed in a radio transmission rather than an academic text.

Onboard *Alvin* at the time was geologist Jack Corliss, a leading voice in the study of subsea plate tectonics. When the sub reached the bottom, and Corliss saw through the thick acrylic window live clams a foot and a half in diameter and aggregations of red and white worms swaying vertically "like flowers in a field," he radioed up to support staff on the ship:

> "Isn't the deep sea supposed to be like a desert?" he asked.
> "Yes," was the reply.
> "Well," the geologist said from thousands of feet below, "there's life down here!"
> (Luiggi 2012)

One can barely fathom the excitement onboard the little sub and its mothership. The scientists manipulated *Alvin's* mechanical arm to obtain samples of tube worms and clams, and then began the long, slow ascent to the surface.

Back onboard the ship, the team promptly relayed their findings via single-sideband radio to Woods Hole Oceanographic Institute, who then relayed the message to David Perlman of the San Francisco Chronicle. Perlman wrote:

> They have pinpointed geysers of hot water venting from fissures in fresh lava and sending warm plumes of brine shimmering upward in the near-freezing lower levels of the sea…They have discovered fresh lava that was poured out onto the sea bottom in ropes and wrinkles, sheet-like pavements and bulbous pillows—squeezed or erupted from the hot, semi-molten material of the deep earth's interior mantle beneath the crust…When these finding are all analyzed in detail they are bound to 'revolutionize' many theories about the deep ocean floor. [Perlman 1977:2]

Having no formaldehyde onboard to preserve samples obtained from below, they preserved the newly discovered organisms in Russian vodka. Appropriately, they named the site *The Garden of Eden.*

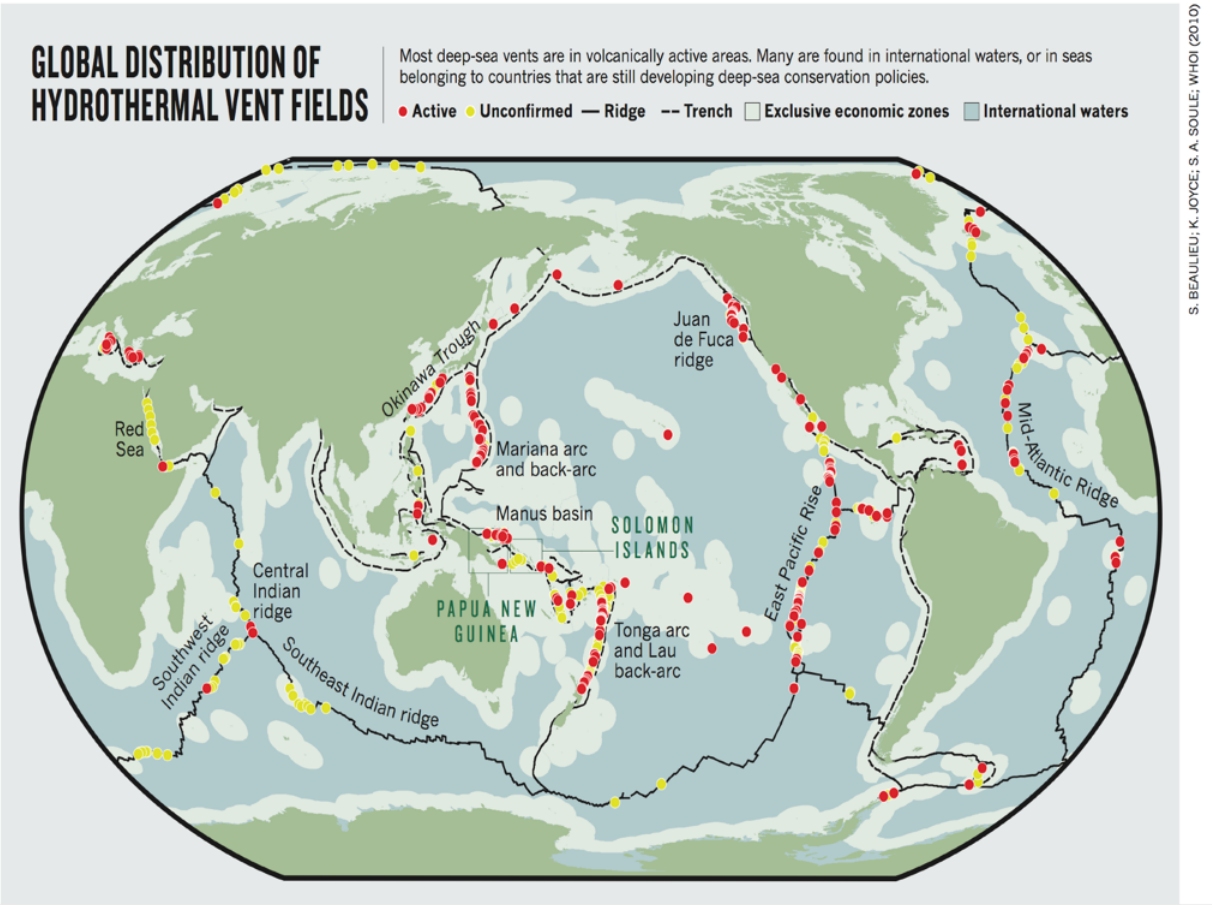

Figure 12: Hydrothermal Vents. Photo from Beaulieu et al. 2010

Back to the Future

The 1977 expedition had not been interested in life in deep sea hydrothermal vents, for it was not acknowledged to exist in such a deep, dark place. As oceanographers and geologists, the

mission of Corliss and his students had been to find sources of heat, and through those, find sources of salt which were presumed to emanate from tectonic convergences and spreading centers in the deep sea. While the trip would radically shift the research direction of Corliss and his graduate students toward life in the hadal abyss, its immediate consequence was a feverish interest in new forms of life, ways of living, and in valuing both organic and inorganic matter present in deep-sea hydrothermal vents. The discovery of hydrothermal vents was a Kuhnian moment across multiple scientific disciplines, but primarily so in biology and geology.

To geologists, the discovery of the vents themselves confirmed their hypothesis—that beneath the seabed, in sites of tectonic convergence or spreading, a process of circulation and thermal convection was occurring in which cold seawater was pressed down into the porous oceanic crust, heated by magma, and then expelled out again into the frigid seawater. Not only did this explain the problem of the missing heat, but through chemical analysis, it was determined that the fluid expelled from deep within the earth was rich in dissolved minerals. The "smoke" coming out of the hydrothermal chimneys contained copper, gold, silver, zinc, and various other rare-earth minerals. When this fluid exited the earth and met the cold seawater, the minerals that had been concealed deep under the seabed precipitated out of their sulfurous solution and aggregated on the sides and tops of the chimneys, building them up higher and higher. All that which was expelled beyond the orifice of the chimney rained down like ash upon the surrounding seabed.

When they analyzed the chemical makeup of the chimneys and the surrounding fallout, geologists found percentages or "grades" of valuable minerals that far exceeded terrestrial deposits. And better yet, by expelling such concentrations of minerals at point sources, the earth itself seemed to be doing the heavy work of mining. The material simply needed to be picked up

and filtered, sorted and smelted. Among geologists, the question arose: *Could mineral resources freely available at hydrothermal vents be accessed and utilized?*

Deep Life

So far, I have provided a genealogy of the economic discourse of Solwara 1. By beginning with the Van Dover (2011) commentary and working backward in time and eastward across the Pacific— from mining interest the SuSu Knolls to a failed mining effort at Gorda Ridge and the earlier discovery of seafloor massive sulfide (SMS) deposits at the Galapagos Rift— I have demonstrated a story or "road" across which Solwara 1 as an economic promise has come to be. Quickly after that initial discovery of The Garden of Eden, hydrothermal vent sites became prospects for a certain kind of lifestyle—one based on the extraction, refinement, and exchange of rarified minerals. It must be stated here that while this lifestyle is often discussed in terms of a general "humanity," it is and has been associated with certain interests on the part of nations and corporations. Not everyone values gold, copper, or molybdenum in the same way. And yet, in mining industry conferences, shareholder reports, and scientific commentary, the Solwara 1 project is said to be "inevitable" because "humanity" is moving in a certain direction.

Judging by the time it has taken SMS mining to begin, it appears that deep seabed mining is *not* inevitable, but rather determined by the forces of nations, militaries, markets, and concerned persons. Forty years have passed since the discovery of hydrothermal vents at the Galapagos Rift, truly a biblical span when considering the pace of contemporary technological development. At the time of this writing, Nautilus Minerals has yet to begin the extractive phase of its Solwara 1 project. Yet, it is this prolonged delay—and actually the sense that there *has been a delay*—that signals the sense of inevitability of seabed mining. Like Van Dover the biologist, Julian Malnic the miner emphasized this inevitability of deep seabed mining. In an

interview with New York Times science writer William Broad in 1997, Malnic said "I see hundreds of millions of dollars' worth of metal in the immediate future…and it won't take long to get into the billions" (Broad 1997). Nautilus Chairman Geoff Loudon, who along with Malnic was instrumental in the discovery and inception of the Lihir goldmine, was quoted in the same *Times* article saying "It's inevitable…this is an industry that's going to turn conventional mining into a dinosaur. The world's big companies are going to get with this or disappear" (Broad 1997).

One of the major factors in the delay of seabed mining has been resistance on the part of environmentalists, local communities, and in a far more complicated way, concerned scientists. Their interest is not so much with lifestyles made possible by the extraction of deep seabed minerals, but the *life* which will possibly be rendered extinct through an experiment in extraction.

Moving back into the future—back across the Pacific from The Garden of Eden toward the SuSu Knolls—we may now trace the discourse of "life" from 1977 to the present, following as Bakhtin might imagine a divergent spectral pathway toward the point where it converges again with "resources" in the haze of heteroglossia surrounding Solwara 1 today. Eventually we see how initial attention toward the novel (be it biological or geological difference) is succeeded by questions of utility: *What does life in the deep sea mean to us? How might we put it to use?*

"Snails, mostly"

When biologists analyzed the samples of tube worms given to them by *Alvin* geologists, they discovered not only a unique *form* of life, but a unique *source* of life. Crowded together in the proximity of hydrothermal vents, the tube worms ingested the hydrogen sulfide which spewed from the rocky chimneys (the black "smoke"). Bacteria inside their soft tubes

metabolized the chemical brew, and in doing so, created organic (carbon-based) food for the worms. Unlike forms of life on the surface of dry earth and in the shallow seas which derive their energy from solar radiation, the bacteria sampled from The Garden of Eden was determined to be *chemosynthetic*—nurtured by chemical energy from deep within the earth. This discovery initiated a scientific revolution no less significant than that of Copernicus: The earth itself was fueling life without the direct influence of the sun. Very soon, the question arose: *Could life as we know it have originated at hydrothermal vents?*

While a group of scientists concentrated specifically on that question (Baross and Hoffman 1985; Corliss et al. 1981; Shock et al. 1995; Van Dover 2000; Wächtershäuser 1988; Woese 1979), many others have focused on questions of form, function, and where each newly discovered organism fits into a larger ecological puzzle. What down there is worthy of such attention? When in 2016 I asked that question to representatives of Nautilus Minerals who were visiting Tembin Village, the answer I received was "snails, mostly." That cursory answer concealed much of what is present in NMNL's Environmental Impact Statement (EIS), including a large catalog of past- and newly-discovered life. But their answer was partly right.

Snails are down there. While humble in appearance, one species in particular has had an important role in the timing and form of the emergence of Solwara 1. After thirty plus years of biological exploration in hydrothermal vent sites around the world, the discovery of *Ifremeria nautilei* at the SuSu Knolls has afforded scientists an understanding of how life moves between distant hydrothermal vent sites. In a 2011 paper, a collection of scientists from Cindy Van Dover's Lab at Duke University describe the deepwater environment of *Ifremeria nautilei* as "patchy and ephemeral" (Thaler et al. 2011). However, the authors describe "a complete absence of genetic subdivision" in these gastropods at distances as far as 1000km. What this suggests is

that *Ifremeria nautilei* are able to colonize distant sites. While hydrothermal vent fields may be isolated across the vast seabed, "larvae of *I. nautilei* are adapted for long distance dispersal" (Thaler et al. 2011).

With this information, the authors of the paper remark that recolonization might be possible from elsewhere if a particular site is destroyed: "High rates of gene flow among the Manus Basin sites suggests that the Solwara 1 vents are likely to be repopulated from other Manus Basin localities, including South Su and Solwara 8" (Thaler et al. 2011). They suggest

> Monitoring of species recovery and genetic diversity as the Solwara 1 population recovers after extraction operations cease should add insight into the rates at which novel haplotypes and alleles accumulate in this species, providing a means to estimate the ages and sizes of extant populations. [Thaler et al. 2011].

Clearly, the authors are aware of the impending Solwara 1 project and have even bestowed the name of the seabed mine on the seamount formerly known as Suzette. In fact, their study has been funded by a research contract from NMNL, along with funding from Duke University, the Oak Foundation, the National Science Foundation, and a fisheries grant from the Irish government. Does "old" Ireland have interest in New Ireland? Likely not. But this does show the degree to which *life* in general and *Ifremeria nautilei* in particular have become compositional forces of nurture of the world's first seabed mining project. That humble snail, in being present in the SuSu Knolls, has in part become the grounds of the statement by Nautilus minerals which argues "the offshore location of the [Solwara 1] has necessarily shifted the primary consultative focus from landowner issues—as there are no direct impacts—to international scientific input" (NMNL 2008:21).

When the snail is involved, Solwara 1 becomes an experiment for the benefit of science, and no longer a threat to local communities. And yet, at the same time, Solwara 1 is in every way possible a mining project. As such, it is subject to national and international laws, and

attention from those concerned with the conservation of biological diversity. When it begins, and *if* it begins, it will kill individual *Ifremeria nautilei* and many other lives, presenting a threat to these forms of life and their ecological roles and capacities. The moment life at hydrothermal vents was imbricated in talk of "seafloor massive sulfide" deposits, it became conceivable as precarious—as something which is there and which may no longer be there if humans act a particular way. In PNG, this attention is visible in national policy for the minimization of "environmental harm" and international guidelines for the preservation of biological diversity.

Threats, Preservation, and Mitigation

The PNG *Environment Act of 2000* regulates the conduct of projects like Solwara 1 with regard to such impacts. In the Act, mining and extraction are considered "Level 3" activities. Such activities:

> (a) involve matters of national importance; or
> (b) may result in serious environmental harm [PNG 2000:5.42]

While "matters of national importance" leaves much room for interpretation, so too does "environmental harm." In section 1.2 of the Act, "environment" is expressed in terms of value and what it might provide, and "harm" is expressed in terms of lost or foreclosed value. Environmental harm "means any change to the environment, or any part of the environment, which has a detrimental effect on any beneficial value relating to the environment" (PNG 2000:Sec 1.2)[6]. This critical piece of legislation is obviously based on past or possible extraction in terrestrial environments where such contamination might be seen, and in becoming visible, might serve as evidence of harmful acts or omissions. The Solwara 1 project, even though it will take place deep underwater where possible contamination is concealed, is guided by this Act.

In order to receive an environmental permit, Level 3 projects require the completion of an Environmental Inception Report, an Environmental Impact Assessment (EIA), an Environmental Impact Statement (EIS), and an Environmental Management and Monitoring Plan (EMMP). With considerable input from hired consultants, scientists, and both PNG based and international NGOs, Nautilus received approval of its Environmental Inception Report for Solwara 1 by the PNG Department of Environment and Conservation in 2007. The company carried out its Environmental Impact Assessment between 2006 and 2008, which involved oceanographic, biological, chemical, water quality, and sedimentation rate studies. It published the EIS for Solwara 1 in 2008. At the time of writing, the EMMP has yet to be submitted and published.

Section 9 of the EIS organizes "Environmental Impacts" into nine categories and assesses them in terms of three criteria: "Extent," "Duration," and "Severity." The categories are:

1) Air Quality,
2) Oceanography and Deep-sea sedimentation,
3) Offshore Water Quality,
4) Sediment Quality,
5) Biological Environment,
6) Maritime Safety,
7) Quarantine,
8) Waste Management, and
9) Activities at the Port of Rabaul.

Across each of these categories, the predominant forms of impact are "sedimentation" related to operation of the machinery on the seafloor and "discharge" of wastewater during normal shipboard operations and during a process of dewatering the ore and returning the slurry to the seabed. According to NMNL, here are some of the anticipated impacts on the "Biological Environment":

> The SMT [Seabed Mining Tool] will disturb the seafloor habitat as it is lowered onto the bottom and as it crawls along the seafloor, leveling chimneys and other irregularities in advance of mining and during the process of mining itself. These actions will destroy habitat and cause some loose sediments to become resuspended and affect water quality

> and deposition in the vicinity of the SMT. The actions of the SMT and of the cutter head will generate some resuspension of fine suspended material as described in Section 9.5. Sessile fauna the path of mining will be unavoidably entrained in the ore stream and pumped to the surface, resulting in an unavoidable loss of these animals. [NMNL 2008:9-19]
>
> The discharge from dewatering will contain some fines that pass through the dewatering of the ore and may contain elevated levels of some dissolved metals, depending on conditions…Many species of tuna occur in the area…and along with sharks they form the basis of a commercial fishery and important subsistence and traditional fisheries such as shark calling. Although the project area is not within the most heavily fished area, these species would nevertheless be expected to pass through the area. Given that some species of tuna can also forage well into the mesopelagic layer, and the vertical migration of plankton can occur between the mesopelagic and epipelagic layers, there is the potential for some bioaccumulation through the food chain via uptake by plankton and subsequent predation by small fish/crustaceans and larger fish. [NMNL 2008:9-15]
>
> Once the SMT leaves a zone, the mined area will then be left to rehabilitate. Mining will level off the chimneys and irregularities of the mound, creating a smoother and mainly hard final surface which for some 60% of the area will be to an expected depth of no more than 20m below the existing seafloor" [NMNL 2008:9-19]

Here again, the prospective operation resembles an open-pit or mountaintop removal mine, with its associated dangers to the immediate and distant watershed. But this project is truly different, because it is *under* water, or rather, immersed in it. There is added danger that fine particles stirred up by the submersible mining equipment may remain suspended in the sea and carried by currents or in the bodies of plankton higher and further out from the mine site. While Nautilus admits the suspended particles might harm fauna surrounding the vents and higher in the food chain, it has argued in the EIS and in public awareness sessions in New Ireland that such effects will occur deep underwater and far from coastal fisheries. There is also the danger that dewatered sediment (the equivalent of terrestrial mine "tailings") will cause similar disruptions. The company has attempted to mitigate this risk by engineering out the potential visibility of these tailings; after valuable ore is removed through a shipboard filtration system, the remaining slurry will be sent back down a riser pipe and released at bathypelagic depth.

The mitigation of death to sessile vent fauna is in some ways more complicated. In the EIS, Nautilus emphasizes the "very small" footprint of the mine, which combined across five mineralization sites at Solwara 1 total "only about 0.112 square kilometers" (NMNL 2008:9-20). In public awareness sessions in New Ireland and in promotional literature, this smaller footprint is framed as the primary advantage of SMS mining versus terrestrial mines of comparable value. Yet some animals, either snails or those included in a more exhaustive list in the appendices of the EIS, are probably there in the path of the seafloor mining tool, and will most certainly die. To address that problem, Nautilus includes "two main objectives of the proposed mitigation measures." The first is "To maintain biodiversity and endemic species at the Solwara 1 hydrothermal vents during and after mining" (NMNL 2008:9-20). The company suggests this objective will be attained through both "natural" and active mitigation. The latter, active forms of mitigation will be accomplished through an "unmined control area at South Su," through "temporary refuge areas within Solwara 1" (Suzette), through the "transplant of animals," through placement of "artificial substrate" around disturbed areas for recolonization of sessile fauna, and through general precaution with regard to discharge of dewatered sediment plumes, sound, and light emissions (NMNL 2008:9-20–9-27). These active forms of mitigation are entirely experimental: it is not certain how they will serve the first objective of mitigation plan—to maintain biodiversity and endemic species at the Solwara 1 site.

The former, "natural mitigation" involves taking advantage of the dynamism of the volcanism itself and the physiological qualities of vent fauna. Nautilus argues in the EIS that "the mining cannot remove or exhaust the natural venting energy source at Solwara 1," which at times inspires active venting and at other times lays dormant deep within the earth (NMNL 2008:9-20). Because the activity of vents is naturally intermittent, and fauna surrounding

hydrothermal chimneys thrive off their superheated, chemically rich emissions, the company suggests that destroyed chimneys will one day form again and be colonized again when the hot chemical brew begins to flow. The company acknowledges the "time scale and potential sources and sequences of the faunal recovery are not yet known" (NMNL 2008:9-21), but combined with active mitigation measures, it is assumed things will return to normal when Suzette is eventually abandoned. Further, the physiological capabilities of the vent organisms will ostensibly play a part in their recovery post-mining: Nautilus infers that the vent organisms themselves have a "high tolerance to metal concentrations," even going so far as to suggest that "higher tolerance to metal concentrations on water and sediments would be of selective and survival value" (NMNL 2008:9-21), and that "mobile animals such as crabs, squat lobsters and shrimps are likely to swim away" (NMNL 2008:9-23).

My objective here is not to review the factual omissions of the entire EIS for Solwara 1, for that has already been done (Rosenbaum 2011; Steiner 2009). Rather, in mentioning the biological impacts and mitigation strategies of Solwara 1, I have shown that threats to the environment concern the integrity and/or existence of *forms*—be they individual organisms, local-scale vent ecosystems, or the area vaguely defined by the anticipated outreach of both naturally occurring and introduced sediment plumes. The discourses of "pollution," "mobility," and "replacement" show this to be true. Having inferred the existence of these forms, both speculatively and through reference to scientific surveys, the company readily admits that their operations will result in "unavoidable loss," bioaccumulation of metals in the food chain, and so forth. But such impacts to biodiversity are balanced by natural and active mitigation strategies. That balance is further shifted in favor of the impending operation through the inclusion of the second objective to mitigation: "To determine the environmental impacts of mining at the

mineralized active chimneys and adjacent inactive hard surfaces, and active/inactive sediments" (NMNL 2008:9-20). The entire project, from exploration to extraction and mitigation, is experimental in the sense that such large-scale extraction has never been done at such depth and in the unique biophysical environment of subsea hydrothermal vents. In the EIS and in company literature and awareness campaigns, the potential rewards of this experiment are emphasized.

At this point we can revisit a quote from the company which I included in Chapter One. In the executive summary of the EIS, we are told that "In comparison with a typical EIA for a land-based project, the offshore location of the Project has necessarily shifted the primary consultative focus from landowner issues—as there are no direct impacts—to international scientific input" (NMNL 2008:21). Not only has the company drawn on international scientific input to determine what is down there, and consulted with them to determine how best to avoid irremediable loss of biodiversity, but we see in the second objective to biodiversity mitigation that the project actually may contribute to that scientific knowledge by showing what works and what does not work. Allegedly, future Solwara projects, many of which have already been granted their own Mining Leases, and future seabed mining ventures throughout the Pacific and throughout the world can benefit from examining baseline and *post facto* surveys of life at the SuSu Knolls.

Living Resources

Critical to this experiment is the maintenance of not only individual elements of biodiversity—the squat lobsters, snails, and other thermophilic extremophiles in and adjacent to deepwater hydrothermal chimneys—but the maintenance of an entire set of present or potential *ecosystem services*. Hydrothermal vents, as they have been described in the EIS for Solwara 1 and in a range of associated and independent publications, offer something to a generalized

humanity. Not only are they a resource site for gold, copper, silver, zinc, molybdenum, and so forth, but they offer something to our species which far surpasses any one of these elements. They offer knowledge, and with that, the potential for our "human" survival.

Prior to the Approval in Principle of the EIS for Solwara 1 in August 2009, deep-sea biologists anticipated the emergence of a seabed mining industry and acted first to establish guidelines for research and extractive activity in and around subsea hydrothermal vents. In these documents, there is little sign of the consideration of complete *preservation* of vent ecosystems that we would see later in Van Dover 2011 and collaborative publications by such eminent researchers (Wedding et al. 2015). The rewards of exploration are simply too great to ignore, and so *conservation* initially takes priority.

These rewards are outlined in the Convention on Biological Diversity (CBD), a non-binding agreement that frames environmental value in terms of real or potential human benefit. Conceived at the 1992 Rio Earth Summit, the CBD is a "practical tool" developed to translate the principles of sustainable development (including the preservation of biological diversity) into reality.

> The Convention recognizes that biological diversity is about more than plants, animals, and microorganisms and their ecosystems—it is about people and our need for food security, medicines, fresh air and water, shelter, and a clean and healthy environment in which to live. [CBD 2000].

In a supplementary white paper to the CBD entitled *Options for Preventing and Mitigating the Impact of Some Activities on Selected Seabed Habitats* (CBD 2008), this discourse of human benefit is inserted into questions of the deep sea ecosystems. It is through this commentary that a generalized "humanity" is positioned opposite these ecosystems as a potential beneficiary of deep-sea biodiversity. The authors of the document identify four types of seafloor ecosystems worthy of concern due to their "endemism and diversity and as potential sources of new genetic

resources with potential commercial applications" (CBD 2008). They are 1) hydrothermal vents; 2) cold seeps; 3) seamounts; and 4) cold water coral and sponge reefs (CBD 2008:8-10). The first, hydrothermal vents, is of primary importance to the question of conservation in the Bismarck Archipelago.

With regard to endemism and biodiversity, hydrothermal vents are oases in a subsea desert. Because the world's hydrothermal vent systems are so far apart, and the cold conditions of their immediate vicinity preclude migration, the many kinds of thermophilic Bacteria, Animalia, and Archaea prefer to stay in place, clinging tightly to brittle chimneys or the soft insides of the beautiful *Riftia* tubeworms. At least 471 distinct species have been recorded at hydrothermal vent sites, with over 91% of these being unique to specific sites only (Desbruyères et al. 2006; Tunnicliffe et al. 1998; see also Van Dover et al. 2002; Van Dover 2002, 2003). Not only are there many different kinds of life present in them, but the relative isolation of vent systems has resulted in a concentration of that difference. The superheated water jetting out of the earth in active vent systems aggregates objects of value for both biologists and bioprospecters, making them easier to locate, examine, and in some way profit from. To use Gell's (1998) term, hydrothermal vents *afford* the kind of knowledge that shape conservation guidelines like the CBD. Like islands, hydrothermal vents express an aspect of natural boundedness. affording clear pictures of ecosystems. They are, or at least appear, situated within a larger and less active abyss. To ecologists, who can compare life and life processes at one hydrothermal field with another in the same oceanic basin or far elsewhere, vents afford ideas of scale.

In a workshop convened by the International Seabed Authority (ISA) in 2010, participants from the scientific community agreed upon six "scaling characteristics": "Within patch diversity", "among patches (within site)", "inter site", "bioregion", "biogeographic province",

and “depth zone” (Van Dover et al. 2011:3). While the creation of such divisions warrants further study, it is sufficient here to point out that the productivity of vent systems goes beyond the organisms present in and around them. In facilitating division into such scales, hydrothermal vents are productive of differential categories of human thought and the same kind of perspectivity inherent to state and industrial accounts of what is “out there” and “down there.” Like the animals surrounding them, hydrothermal vents are, as Levi-Strauss (1962) might say, “good to think.”

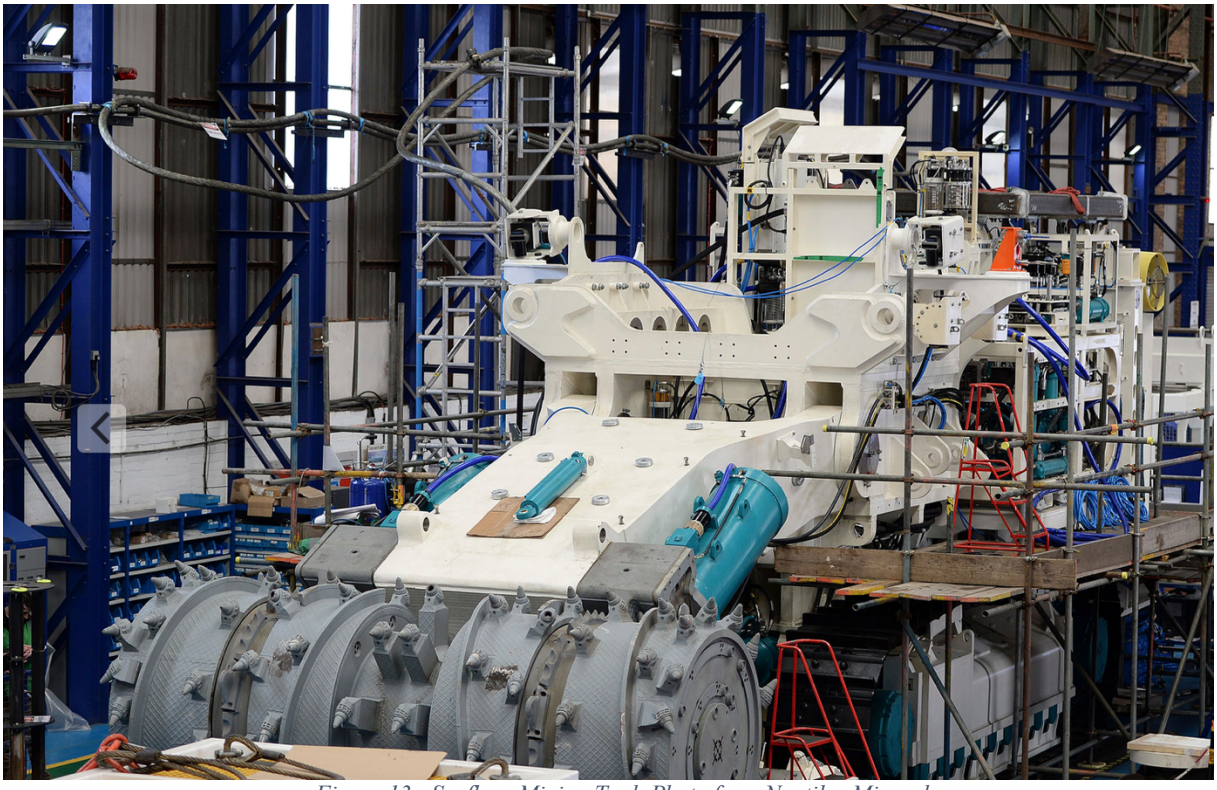

Figure 13: Seafloor Mining Tool. Photo from Nautilus Minerals

Summary

After a journey across the Pacific, through time, and back again, we finally return to the Cindy Van Dover’s 2011 commentary on deep seabed mining. There, in spite of all the promise of deep mineral resources and scientific knowledge, we find justification for alarm. Deep-sea hydrothermal vent systems, should we be able to see them through photographs or through the

thick acrylic windows of *Alvin*, are as striking as any terrestrial landscape and populated by diverse beings, many of which are not yet known to science. When Nautilus mows over these systems and the individual organisms within them with submersible bulldozers, as they plan to do in 2019, "we" risk losing a chance to know about these forms of life and their interactions. And without knowing about them, this collective "we" lose the opportunity benefit from them.

Van Dover likens contemporary engagements with hydrothermal vents to a pivotal episode in the history of environmental governance—the "setting aside" of Yellowstone National Park in 1872. To policymakers in Washington DC, the bold features of the American West were only available "through photographs, paintings, and stories." But ultimately, in the face of mineral speculation and contesting claims, it was their "swift action…that [left] this wilderness pristine for future generations" (Van Dover 2011:31). This commentary fails to mention acts of dispossession and elimination of Native peoples (and animals) that has been legitimized through the creation of protected areas (Katz 1998; Spence 2000; West et al. 2006)—an omission which alone reveals how "humanity" in general and Native bodies in particular become mutable in discourses of the ecological. In this commentary and others like it, what seems to be at stake is not only the lands, the seas, and their inhabitants, or whatever "wildness[7]" they may be said to possess, but a sense of a collective history and a specific kind of human future.

In affording biological diversity, scaled endemism, and the corresponding categories of thought, vents afford companies and states a different kind of economic gain. With regard to the potential for new genetic resources at such sites, it has long been known that in addition to gold and mineral resources, there are biological and genetic resources in the sea which can be exploited by and for humans. Helmreich (2009) provides a ethnographic account of this oceanic "biodiversity-become-biocapital" (2009:126), and several microbiologists now dedicate

substantial time and research budgets to "bioprospecting"—searching for and cultivating chemical compounds and organisms with unique physical capacities, and using them as either models or materials for the treatment of diseases or the synthesis of new products. More recently, hydrothermal vents and their associated biodiversity afford tourism. This is of course an extreme and limited industry, but is increasing each year as private expedition yachts outfitted with their own submarines search for the "new, new thing" deep under the surface (see M. Lewis 1999).

In the Van Dover et al. 2011 report, it is not certain whether these latter affordances should be considered commercial activities or "ecosystem services." But the reality—that all of these are in some sense capitalist activities—is disguised by the invocation of a larger, general humanity who is served by scientific research, bioprospecting, and even tourism.

> Vents and seeps have non-use values that are cognitive in nature and arise from simply knowing that vents, seeps, and the animals that live in them, exist now (existence value) and will exist in to the future for subsequent generations (bequest value). Diversity associated with vents and seeps contains evolutionary potential in the form of genes, metabolic pathways, novel organs, and physiological tolerances. The potential is critical for the long-term persistence of life on Earth. [Van Dover et al. 2011:7]

Whereas UNCLOS and its Implementing Agreements include provisions for the exploration and distribution of rights and resources to marine areas within and out of national jurisdiction, the CBD calls for "a global network of comprehensive, representative and effectively managed protected areas by 2012 and suggests that at least 10% of each of the world's ecological regions be conserved" (Van Dover 2011:33). Like the first U.S. National Park, the deep sea is host to "creatures of extraordinary beauty…exquisitely adapted to their environment" (Van Dover 2011:33). And while Yellowstone was laterally remote from policymakers in Washington, the deep sea is both laterally and vertically remote from everyone on land: It is not only "out there", but also "down there," hidden deep underwater. With

evidence of biological and geological diversity, similar measures of conservation can and should be enacted, and quickly, before opportunities to know about and benefit from deep-sea biodiversity are foreclosed. "Humans," Van Dover writes, "may choose to threaten these habitats for economic or strategic advantage…But we should make these choices on the basis of an understanding of what we may lose as well as what we may gain" (Van Dover 2011:33). At the root of this advice is the idea that we humans come into relation with deep sea nature as knowers, beneficiaries, and hopefully, as its protectors. This implies a prior and existing separation from the deep, which itself precludes understandings of enduring relations between humans and deep-sea life.

Today, the question of the origination of life has, rather incredibly, been superseded by questions of present and future benefits to humanity. When it comes to "evolutionary potential," forms of use-value and exchange-value are more compelling than forms of origin- or existential value. Simply put, the former have the potential to fund more research and launch more ships to hydrothermal vent systems. Jack Corliss, the scientist who first set eyes upon "The Garden of Eden" in the Galapagos Rift, no longer works in the geology department at Oregon State University, but now studies questions of evolution and complexity at the Central European University in Budapest. To Van Dover and Corliss alike, firsthand experience of vents and their associated fauna have changed the course of their careers. But those who have been to such depths are few. The rest of us rely, as did the bureaucrats in Washington, on photographs and fantastic accounts of what dwells there in the deep.

In beginning with Van Dover's 2011 commentary in *Nature* and working across the Pacific and back again, I have shown in this chapter how the space of Solwara 1 has come to exist in two and then in three dimensions. That space has been defined in part by the geologic features of the

vents themselves—by the location of the North and South Su and their doomed sister, Suzette. But it has also been defined by the work of those vents and the organisms present around them. Hydrothermal vents, in aggregating mineral, biological, genetic, and conceptual diversity, afford seabed miners and scientists a degree of efficiency that is tremendously important to the modern oceanographic cruise. Vents allow for a conceptual draining of the sea itself. The sea, in turn, provides concealment and a degree of dispersion for the disposal of tailings and the kind of violence that is certain to occur when the robotic arms and cleated rollers of submersible machinery present themselves at depth.

When Nautilus Minerals describes in their EIS the potential impacts to biological and other forms of diversity, they do so with regard to contamination and contact—either immediate killing of organisms and geological features, or a slower violence resulting from sedimentation and smothering. Having first demarcated the environment of Solwara 1 as required in by the Independent State of Papua New Guinea's *Mining Act of 1992*, the company, with an exploration license in hand, proceeded to assess the potential for environmental impact as required by the *Environment Act of 2000.* In doing so, they secured a Mining Lease. In the first step, the "land" enclosed within the bounds of Solwara 1 became theirs alone to explore. In the second step, the value within that land became theirs to exploit. The SuSu Sisters are first enclosed in a polygonal box, and then, with consideration of natural and anthropogenic sediment "plumes", their environment takes on a dimension of verticality: it becomes something like a column that tilts side to side with seasonal tides.

Again, the action of the vents themselves and the physiologies of the organisms they support define the spatial characteristics of their environment, as does the threat to such physiology in the form of pollution. Here, we see how Nautilus *and* environmentally-minded

biologists draw from established categories to assess *and then justify* what is the first project of its kind in the waters of Papua New Guinea, and indeed the first of its kind in the world. By bounding the environment in space and framing 'impact' in a discourse of pollution—that is, as the corruption or destruction of forms or the sullying of spaces—both the mining company and the scientists concerned with life at hydrothermal vents foreclose upon the possibility of environmentalist resistance in the way it has been done since the mid-twentieth century. A key actor here is the sea itself, which in a material sense works to conceal the kind of pollution that will inevitably occur at depth, and in a legal sense, through UNCLOS, belongs to the State and not any of the tens of thousands of indigenous Papua New Guineans of the Bismarck Archipelago.

When those people protest the world's first deep seabed mine, and raise concerns over the pollution of their pristine waters, the destruction of their fisheries, the contamination of their primary source of protein by heavy metals, and the contamination of the Bismarck soundscape by the noise of submersible machinery, they have little ground to stand on, first because the sea conceals visible appearances of pollution, and second, because they have no legal claim to the area of seabed that has now become *Solwara 1*. Inasmuch as environmentalist resistance opposes the destruction or contamination of forms of life or landscapes, it will fail when seabed mining, marine bioprospecting, and other such forms of engagement between human and subsea actors commence.

The problem here is not with environmentalist resistance as such: People in the Bismarck Archipelago and throughout the world with serious concerns for life in the sea are continually putting enormous pressure on Nautilus and their governments, and have in some cases effected the temporary or indefinite delay of projects like Solwara 1. In Papua New Guinea, two groups

in particular—The *Alliance of Solwara Warriors* and *ActNowPNG* continue to protest seabed mining on social media and in villages and towns. In New Zealand, *Kiwis Against Seabed Mining* continue to fight proposals for the extraction of iron-rich sands from the seabed. And scientists, Van Dover included, now increasingly argue for the postponement of all forthcoming projects until more can be known about the recolonization of hydrothermal vents after periods of natural dormancy. As a mode of engagement with hydrothermal vent fauna and ecosystems, environmentalism is working. But as a logic, it has a fatal problem.

The problem is with the definition of the "environment" in formalist terms. While rainforests, deserts, prairies, mountains and valleys may be defined by fences, walls, or by invisible geopolitical borders, and species within such spaces can be quantified in terms of number and condition, and all of that may be preserved or conserved for the good of humankind, the deep sea resists such order. To the best of our knowledge, it has never been dwelled in by humans, and will not likely be in the immediate future. In this light, it can *only* be conceived of as a site of exploitation. The aesthetic invoked by Van Dover—that of a submerged Yellowstone—does not work for the particular humans who have already been written out of the narrative.

In this chapter, I have attempted to redefine the environment of *Solwara 1,* and "environment" in general, differently. I have chosen not to demonstrate how the environment of Solwara 1 includes those thousands of people whose physical and social reproduction depends on the Bismarck Sea, nor have I traced the predominantly eastward currents as they wash across these volcanic seamounts at a depth of fifteen hundred meters. Rather, in beginning at a somewhat arbitrary text and tracing two "spectral" histories to their common ancestor, I have shown the environment of Solwara 1 to extend far beyond the polygon of space encapsulated by

EL1196, far outward and into the past through a series of social relations—to the R/V Franklin; to meetings of the International Seabed Authority in Kingston and the Convention on Biological Diversity in Rome; to the office of geologist Ray Binns and the fortuitous reunion of two college mates—Malnic and Heydon; to the cramped titanium sphere of the submersible *Alvin* and "The Garden of Eden" it found in the Galapagos Rift; to the coast of Oregon and Reagan's Oval Office; to the mid-Atlantic Ridge and beyond. These are the "sites" or emplaced relationships that in researching and writing this chapter have caught my attention; each has led to the Van Dover commentary with which I began, and can be shown to have nurtured its emergence in the present space and time. I have, somewhat arbitrarily, divided these into two histories, but only to critique the idea that environmentalism and extraction are opposed to each other with regard to deep seabed mining. Truly, their histories intertwine over and over again in questions of resources and ecosystem services, in articles and in meetings, and in individuals like Van Dover, who readily admits to collaboration with Nautilus for the purpose of scientific access to deep sea vents and the opportunity to introduce principles of conservation to the highly experimental but "inevitable" venture. Together, these histories, along with so many other threads, compose the road and the rhythm of Solwara's emergence. They are where it has come from—its environment. And to the extent that Solwara owe's some obligation to them, which of course it does, they form its ecosystem. While the sea may conceal what happens at depth, it is just as good at concealing what happens in the interstices of my dual account of Solwara's origin.

As much as it is a space in which Solwara 1 exists, the sea has measured the timing by which Solwara 1 has emerged to you and me, here and now, after so many years of dreaming, intermittent explorations, bureaucratic delays and environmentalist resistance. The sea is not

merely a space, but when that which has come from it meets our eyes, the sea, to use Derek Walcott's (1979) words, is history.

It is exactly that history, its particularity, and its work to condition the possibility of intelligible forms that are erased when such forms are explored, ordered, and exploited for the future of a collective "humanity." The rhythm of that emergence that allows the audience of such forms to understand where they have come from, what they want, and how to engage with them as kin is barely acknowledged with the mention of inevitability: that term is just a small hint that the being in question is alive. By looking to forms as real or potential service providers to a generalized population, species, or end-users, scientists, industrialists, and policymakers neglect the specificity of their histories, their interests, and the ways in which they may want to engage with us. In other words, by looking to biological and geological diversity as potential ecosystem- or technical services, they erase the social environment out of which that difference has emerged and which continues to ground its existence as the object of our attention. In thereby making such forms the same—say, as "deep sea life" or simply "snails"—these influential figures simultaneously neglect the possibilities of recognition of difference among their human interlocutors—the people who pay more or less attention to these emergent kin. Deep seabed mining as it has been proposed is not inevitable; it is contingent on these kinds of formations.

[1] "The Shadow" by Hans Christian Anderson (1847)

[2] Derived from saltwater, "Solwara" in Melanesian Pidgin refers to "sea"

[3] The delineation of Papua New Guinea's land and sea into blocks and sub-blocks was originally accomplished by the Australian Administration, mirroring that nation's own system of graticular (or Cartesian) cartography.

[4] "Susu" in Tok Pisin refers to breasts, or the act of breastfeeding.

[5] "Areas of hard substratum with high base metal and sulfide content that form through hydrothermal circulation and are commonly found at hydrothermal vent sites" (Boschen et al. 2013)

[6] The Environment Act of 2000 defines "environmental harm" as "any change to the environment, or any part of the environment, which has a detrimental effect on any beneficial value relating to the environment, and –
(*a*) may be caused by an act or omission whether the harm –
(i) is a direct or indirect result of the act or omission; or
(ii) results from the act or omission alone or from the combined effects of the act or omission and any other act or omission; and
(*b*) without in any way limiting the meaning of environmental harm, a person shall be deemed to have caused environmental harm if that person –
(i) causes or permits to be placed in or so that it may be released into the environment any contaminant which is prohibited by or under this Act or does not comply with any standard prescribed for that contaminant; or
(ii) causes or permits the release of any contaminant into the environment in contravention of this Act; or
(iii) uses any chemical substance or fuel the use of which is prohibited by or under this Act; or
(iv) contravenes any regulation dealing with the use of any ozone depleting substance, or the manufacture, assembly, operation, maintenance, removal, sale or disposal of goods, equipment, machinery, or plant containing or using an ozone-depleting substance; or
(v) places a contaminant in any position where it could reasonably be expected to gain access to waters in circumstances where if access was gained the contaminant would result in the waters being changed in a manner prohibited by this Act or which does not comply with any standard prescribed for that contaminant; or
(vi) causes or permits the temperature of the receiving waters to be raised or lowered by more than prescribed limits; or
(vii) establishes on land a site for the disposal of refuse, garbage, soil, rock or other solid or liquid waste so as to be obnoxious or unduly offensive to the senses of human beings or so as to interfere with any ground water in a manner prohibited by this Act or which does not comply with any standard prescribed for that contaminant

[7] I am thinking particularly here of Thoreau's (1914) oft-cited quote: "In wildness is the preservation of the world."

CHAPTER FIVE: *SHARKCALLING CULTURE*

Lasing Teman, Manat, ma Lentanon Kaxa, Irurun.
Tamam Moroa, masingu unasanga nama min Lentanon Kaxa.
Nambolok konong iterema Manat monombovovara ta konong iterema
Teren i Lentanon Kaxa. Irurun.

-A Mandak Prayer to Moroa (transcribed by the author)

Shortly after midday, a mass of men appeared on the horizon of the Bismarck Sea. Riding the swells, they moved east toward New Ireland. On the beaches of the island, word quickly spread of their arrival. Hundreds of people shuffled to the water's edge for a better look. Tiny children climbed the trunks of ancient *mamau* trees, and their parents and grandparents gathered underneath in the shade. As the men drew closer to the shallow reef and the white foam of the breaking waves, they seemed to be heading for a single point on shore. Tracing their gaze, we saw a local man wrapped in a bright red *laplap* (TP: sarong) looking back out to them. An elder maimai, the man held a blood-red tanget leaf in his raised right hand. With bold, avian gestures and sharp whistles, he called in the fifty canoes. When they entered the calm water of the lagoon, we could see each man and his canoe adorned with bright green, yellow, and red leaves. Together, they resembled a living raft of flesh and foliage, like something from a foreign shore blown in on a storm.

Ignoring all of us, the maimai drew the men even closer with the outstretched tanget. In unison, they stopped and floated in just a meter of water. Then, at the man's command, each produced from the shadows of his own canoe a rattle made of dried coconut shells and held it high in the air. Following another shrill cry from their leader, all fifty men thrust the rattles down into the sea, shook them once, shook them again, and then shook them vigorously against the hulls of their wooden boats. The sound was like nothing I had ever heard. Loud and boisterous, the shuck-shucking of the *levarung* resonated from the hollowed boats into the sea

and sky. They kept this up for a full minute, dropping into low bass notes as they lowered the rattles deeper past the waterline, and rising higher when they lifted them up. Thrust down lower again, the sound seemed further away. Rising up, it seemed closer. Through rhythmic manipulations of their instruments against the hollow boats, these men—all of them sharkcallers—moved closer to us, then further away. Through careful modulations of pitch and volume, they produced and then reduced the apparent space between us, producing in turn an amphitheater—an amphibious theatre—in which they were the orchestra and we on shore were the audience. Blinded by this monumental expression of "Sharkcalling Culture"—we had in fact become objects of their call. Land had become the sea, and we were the sharks.

In an instant, it all stopped. For a minute or so they rested. Two or three graceful *londoli* (M: frigatebirds) soared silently overhead. But then, another shout from the old man carried them through the next steps of the sharkcalling, one by one, until each man pulled an invisible shark up into his boat. Slowly, conversation and joyous laughter began on the beach. Several elder women muttered amongst themselves and gestured toward the sea. The sharkcallers relaxed and fell out of formation. Some paddled home while others joined their families on the beach. The "Shark Drill," as they called it, was over.

Throughout the event, an older man on the beach repeatedly caught my attention. The brother Daniel, my classificatory father in the village, I call him *mama* (M: father) too. His name is Blase Soka. With every motion, Blase had followed the sharkcallers, performing each command perfectly with the floating men. When it was all finished, he looked at me with eyes twice clouded by cataracts and tears. Then with a single word, he asked, "Satisfied?"

Of course I was satisfied. Neither my guests nor I had never seen anything like this. Sharkcalling was vibrant and strong. Surprisingly, though, not everyone was satisfied. To my

surprise, several people were upset that no sharks had been caught during the three-day event. A lone European tourist who seemed to arrive out of nowhere during the second day asked me if the sharkcallers had caught anything. He lingered for an hour or so, then left before the Shark Drill began. Lower-level representatives of the New Ireland Provincial Government and two representatives of Nautilus Minerals who were also present expressed skepticism and disdain. "The festival is a failure," they said. "All that funding from the government and they don't catch a single shark."

In the previous chapter, I began with a text and worked backward to a site far across the Pacific, then forward into the present. In doing so, I identified two points of concurrence (and divergence) of deep-sea "life" and deep-sea "resources" in order to reveal the forces that have, in part, brought Solwara 1 into existence at a particular moment. In this chapter I move back and forth along the rocky road between Tembin Village, the island of New Ireland, the nation of PNG, and a world beyond to demonstrate how "Sharkcalling Culture," expressed during the Sharkcalling Festival, marks the convergence of the practice of sharkcalling and the ways in which that practice has been imagined and represented by tourists and documentary filmmakers in the past few decades. In expressing what happened at the festival, I aim to convey a sense of the environment that has nurtured Sharkcalling Culture into existence.

The Sharkcalling Festival

Toward the end of my fieldwork, the Kontu/Tembin Sharkcalling Festival was held in the Mandak village of Kontu. What was once an annual production had not happened since 2010. Officials from the provincial government attributed the delay to disputes within the village. Those in the village said the government had for three years failed to provide funding. This year was different. Sixty-two thousand Kina (roughly $20,000 USD in 2016) had been granted to the

organizing committee from multiple sources including the Namatanai District Development Authority (DDA), the New Ireland Central Local Level Government (LLG), and Nautilus Minerals. By the close of the three-day event, the money had all been spent. Over fifty shark callers had gone to sea and come back. Remarkably, not a single shark had been caught.

I traveled to Tembin on the first day of the festival with six friends in a bright blue Toyota Hilux. Our group was composed of three American anthropologists (me included), John Aini (a marine scientist and political leader from the nearby island of New Hanover), his partner from the distant island of Mussau, and another man from New Hanover who came along to visit a relative in the Mandak area and to help us with any breakdowns, tire changes, or the many possible hindrances we might meet along the way. The next day we would be joined by Mal Smith, an eminent politician, entrepreneur, and helicopter pilot from the Eastern Highlands of PNG.

After stocking up on ten-kilogram bags of rice, betelnut, and snacks in Kavieng, we departed south down the Boluminski Highway at eight in the morning. The drive was surprisingly uneventful, though the condition of the road was far worse once we crossed the island's central ridge at Fangalawa Junction and entered the west coast. Three hours after our departure, we crossed the bridge over the Marakalang River into Tembin. Without the frequent stops and breakdowns of the public truck, the trip was shorter than usual, certainly the shortest I had ever experienced. But it would not have been possible in the monsoon.

Daniel, my father in the village, and his family welcomed us and led us to a newly-constructed *hauswin* (TP: open-air structure) for a cup of instant coffee. The sea was slightly choppy with dark clouds looming on the horizon, though it looked as though the southeast trades

might keep the weather away. Far in the distance there were three canoes, surely calling for sharks.

After formal introductions, Daniel went off toward the mission station to get a *singsing* group organized. My friends and I remained there on the beach for another hour, resting, snacking on sweet bananas, and deciding what we should do next. After a while, we got restless. I asked my *anuk*, *Tamam awai?* (M:Where is father?). She laughed and said, "Kontu! He's at the festival." Daniel had gone already, and he was not coming back to get us. Somewhat aggravated at the lack of information given to us, we piled into the truck and drove south.

The drive from Tembin to Kontu is typically very short—no more than five minutes—but we stopped several times along the way to meet friends and make introductions. We were greeted by small crowds gathered along the road, each wondering who was in the truck. Seeing me, they exclaimed "Pat-er-ick! *Sumbu*! (M: Good morning!)" followed immediately by "*U pas mia*?" (M: You are coming from where?). Most often I answered specifically: "Kavieng!" Or, as I grew more tired, simply "*Moroes*" (M: from the direction of Kavieng). It was a joy to return here, to see faces I hadn't seen in a while and to see them so happy to see me. Eventually, after many such conversations along the road, we drove under a hand-painted banner that read "Welcome to the Kontu/Tembin Sharkcalling Festival."

Further along, in an open field to the left of the road was an elaborate grandstand with a few dozen people assembled around it. Constructed of chain-sawn timber, it was raised eight feet off the ground, with benches and a large table on top and a corrugated metal roof overhead. The large structure faced a large field to the north, where a singsing group had just finished and were walking from the muddy grass back onto the road. We spotted Daniel immediately and pulled the truck alongside.

"The singsings have begun already? I asked him.
"Yes. Singsing finished."

Frustrated again by the lack of communication, we parked the truck and were led by Daniel through a crowd of children toward the grandstand. Formal introductions followed. We shook hands with members of the organizing committee, the emcee, and the local LLG President and Ward Member. Hundreds soon gathered around and under the grandstand, both adults and children, many whom I knew and many from Ugana and Lambu villages to the south and Lemau to the north. Down and in front of us, the main field was muddied by the first singsing and last night's rain. Group of boys, some of whom had been drinking homebrew liquor since the night before, stood around in small groups looking ragged. From where we sat our view of the sea was obstructed by trees and village homes. We wondered aloud if any of the shark callers had been successful, and were told "not yet." Should they get a shark, we would hopefully hear the sound of their trumpet shell above the singing, dancing, the low hum of the electric generator.

Soon there were more singsings. In the first, a group of men and women assembled around a young woman seated on a bamboo chair. Wearing a bright yellow rugby shirt, the woman held an umbrella and a timid smile. Those surrounding her wore wreaths of leaves on their head and waists. An elder man held a dark red tanget from its stem. He wore an orange wreath around his head with a striking sunburst of feather facing forward; a blood red dot at its center. Others held the green and red tangets too, and together they formed a circle around the seated woman. As their circle collapsed toward her, they lifted outstretch hands in unison. A man in fluro-orange workwear then approached with a plastic bucket in one hand and coconut shell in the other. He circled the circle counterclockwise, dousing everyone in water. Levity ensued, and soon a woman I knew for her piety during Sunday church services began a hilarious rampage, pressing handfuls of mud and leaves into faces of elder men.

Still more singsings followed. In one memorable display, local women dressed in dark green leaves gathered in the muddied center of the field and planted taro fronds in the soft ground. In another, pre-teen boys did their own sharkcalling drill. Their mothers and uncles gathered around with critical eyes while the young men's female agemates looked watched carefully through the crowd. By far the youngest participants in the festival were from the primary school at Kontu. Arriving last after all the other groups, they followed their rain-soaked teacher in a wiggling line of laughter.

Between each singsing, we on the grandstand ate delicious garden food cooked by the women of Kontu and Tembin. Each hamlet in these villages has an accompanying hauskuk, a small hearth in which a tiny fire is kept burning throughout the day. Most of these areas contain a few dozen small stones which are used for daily mumus and, when there is a death in the village, may be contributed to the larger malangan mumus. In each of the hauskuks surrounding the festival grounds, women had been cooking all morning and the night before, and now sat resting under the eaves of thatched roofs.

At one point in the afternoon, our small group of "VIPs" were joined on the grandstand by a white tourist who had arrived from the south. Such an arrival was atypical in these villages—most people come from Kavieng in the north, turn right at Fangalawa Junction, cross over the island's central ridge, and then continue along in hired cars down the rugged west-coast road. This man, however, had come from Rabaul in the nearby island of New Britain via the town of Namatanai in New Ireland's southern half. Asking more, I found he had come all the way from Madang on the Papua New Guinean mainland, and before that, Europe. The more I asked, the more I realized what a complicated journey he had made—by plane from Madang to Kokopo in New Britain, by public bus from Kokopo to Rabaul, by small hired boat from Rabaul across the

St. George Channel to west-coast Namatanai, by bicycle for ten or so kilometers up the west coast road, and finally by hitchhiking in local cars from Ugana to Kontu. Considering the length and complication of that journey, I was surprised to see him stay only through several of the singsongs and lunch before departing south again. In the short time he was with us, I asked him more about why he had come so far. I had originally taken him to be a wayward tourist, or even a "begpacker[1]." But through more conversation I learned he had come this far to research an article he had been commissioned to write about sharkcalling in New Ireland.

We enjoyed each other's company. He asked me all about sharkcalling, what I had learned, and if I "believed the superstitions" about sharks and spirits. As we watched each singsing, I acted as tour guide and revealed small points of significance I had learned I the past year—the importance of taro; how bent elbows on dancers signify the fins of a shark. I told him a bit about my research, and he told me about his work for a European charity organization. Hearing this, I made the connection between him and a previous visitor I had met with in Kavieng from that same organization. She had come from Australia to learn more about sharkcalling and New Ireland Culture as part of a larger political campaign against seabed mining in Papua New Guinea. Indeed, they were associates. Hearing of the sharkcalling festival, he had come to learn and write about it, and possibly talk with representatives from the mining company, Nautilus Minerals, if they turned up. He did meet with them briefly, and learned a few things about sharkcalling from me. But with a return flight already arranged from Rabaul back to Madang, his time in Kontu was limited. He stayed with me on the grandstand for just a few hours before hitching a ride in the back of a truck bound for Ugana. *In and out*, as those in New Ireland say, *like a flying fox.*

Figure 14: Kosmas the Sharkcaller

Throughout this first day, men from Kontu and Tembin built a sharkcalling canoe (M: *lesim*) for all to see. The hull had been dug out already and rested upside down on wooden posts while the outrigger and forked crossmembers were lashed together with strips of supple green cane. The men building the canoe changed throughout the day. One would assist with the lashing work, then depart, only to return again leading a singsing group. Another set of men arrived for the difficult and extremely unique task of braiding the fibrous noose which is placed around the neck of the shark. Beginning with distinct strands which had been tied to the outstretched branch of an old tree, three men moved into a circle with their faces just inches apart. Then, through a series of carefully coordinated movements, they elbowed into and out of the small circle they had made. The intense motion of the three of them distracted me for a

minute from the actual braid, which when I noticed it again had descended from the tree like a snake into the middle of their tight group. In less than a minute it was complete—unbreakable by the largest of predatory sharks.

The day ended with rain. My friends departed the village in the bright blue truck and drove back to Kavieng to pick up Mal who had arrived that afternoon on the daily Air Niugini flight from Port Moresby. They would return again the next morning, suffering the washed-out west coast road four times that weekend.

I returned by foot to Tembin and made myself comfortable in the hauswin. The men from Nautilus were staying in Daniel's guesthouse again that night, and together with several government representatives and friends from Tembin, we drank tea and talked.

As the light rain of the day gathered strength in the evening, we wondered aloud whether any sharks would be caught tomorrow, the final day of the festival. The men from Nautilus said that if there were no sharks by tomorrow when the Member for Namatanai (then- PNG Mining Minister) Byron Chan arrived, he would surely be upset.

> "Sixty-two thousand kina of Namatanai District Development Authority funds had been spent."

What could possibly have cost that much?

> "Five hundred kina had been given to each of five participating villages for the cost of food." "Buying the sharkcalling workers." "Buying the sharkcallers." "Building the grandstand." "Use of the generator and petrol." "Transport for singsing groups and official visitors…"

Still, I wondered, where did the sixty-two thousand PNG Kina go? Daniel suggested with condescension that years before, when he and his cousin-brother held the event, they did it for half that amount.

These and other comments signaled a general frustration among some of us in Tembin after the first major day of the event. There was this sense of disdain for the state of the festival that centered on the themes of money, sharks, and rain. Where was the money? Where were the sharks? From where was the rain coming? Some elder men from the village hinted at the use of rain magic, which had muddied the dance field, kept the sharks away, and in doing so, made the large expenditure seem excessive. As we talked, the southwest wind grew stronger and waves broke heavily over the fringing reef. Unseasonable weather, for sure. But was it weather magic at work?

The conversation turned to tourism. "Where were the tourists," I interjected. There was a slow pause, and then someone mentioned the lone visitor who had come the long distance from the south. We all laughed incredulously at the thought of riding a bicycle that long distance from west-coast Namatanai up to Kontu in the heat, the intermittent rain, and along the terrible road, only to leave again soon after. The Nautilus men said he had introduced himself to them as a tourist, and through their conversation, he asked about seabed mining. "Really?" I wondered aloud. "He told me he was on assignment from a conservation organization to write about sharkcalling."

Immediately after I said this I felt awful for revealing his cover. But there among Mandak friends, and among Nautilus, who had, in a sense, become part of the Mandak world, if only for a few nights, it seemed the right thing to do—to clarify the truth about something for the benefit of all of us. The two mining representatives shook their heads, and said that was the same organization that had sent a woman to talk with them early on in their tenure in New Ireland. "But she was not a charity worker," they said. "She was an activist." Having met her myself months earlier, I doubt she would have attempted the kind of subterfuge of this more recent

visitor, but her formal affiliation with a charity did not make things any clearer. This bout of frustration about the "tourist" and anti-mining activists in general carried on for some time, with all of us agreeing that deception is not the way to go about business in PNG. "Say who you are, and come to talk with us, and we will go from there" the Nautilus men said. "Don't try to carry on behind our backs or pretend you're something you're not." We all nodded our heads.

Tourism was still on our minds. I asked Daniel and our family and friends what kind of tourism they wanted, and how they thought tourism to the west coast of New Ireland could be improved. I offered some possible explanations of why more tourists had not come: the condition of the road, the difficulty of transport, and so on. What I heard in reply from everyone else was both surprising and enlightening: "Tourism needs to begin here in New Ireland among New Ireland people. Today people came from the east coast, from Kavieng, and from Namatanai to see sharkcalling. This sharkcalling, this is something from New Ireland."

I realized my error immediately: I had equated tourism with white visitors. I might as well have asked, "Where are the white people? How do we get more white people to come from Port Moresby or from Australia or Europe?" Embarrassed, I stopped talking and listened as they discussed among themselves the prospect of intraisland tourism, "taking ownership of culture," and so forth. Soonafter, I grew tired and went to bed, and their conversation continued on into the night.

From the World to the Nation

I was not alone in thinking "tourism" in New Ireland meant foreign visitation. In 2006, the State of Papua New Guinea commissioned a Tourism Sector Review and Master Plan from its national Tourism Promotional Authority (PNGTPA) and the Independent Consumer and Competition Commission (ICCC). The report, which set a course to "grow PNG Tourism as a

sustainable industry" over the next ten years, included an assessment of the current state of the PNG tourism industry, its future growth potential, key strategic issues, strategies and actions, and a program of implementation. Its opening paragraph reveals a consistent theme: the promise of economic growth from elsewhere, effected through provincial and community-based collaboration:

> Tourism has the potential to contribute significantly to the development of the PNG economy. Increased foreign travel into PNG can result in greater foreign currency earnings and reserves, higher employment levels and generate demand for PNG culture and other goods and services resulting in broader economic gains for all people in PNG. The development of the tourism industry is reliant on a partnership between the government, industry, and the people of PNG. [PNGTPA 2006:6]

Section 4.1.3 of the report clarifies the potential sources of this revenue, and includes a table listing Australia, USA, Japan, and UK/Germany as target markets.

Market Segment	Australia	USA	Japan	UK/Germany	Other
Primary Product Segments					
Diving	⊕⊕	⊕⊕	⊕⊕	⊕⊕	
Trekking	⊕⊕		⊕		
WWII History	⊕		⊕		
Culture/Village Stay	⊕	⊕	⊕	⊕⊕	
Secondary Product Segments					
Bird Watching	⊕	⊕	⊕	⊕	
Other Nature	⊕	⊕	⊕	⊕	
Surfing	⊕⊕	⊕	⊕		
Fishing	⊕⊕		⊕		
Cruising	⊕	⊕	⊕	⊕	
MICE					⊕

Figure 15: Tourism Products. From PNGTPA 2006:42

In the above table and throughout the report, activities associated with tourists are listed as "products," a term which signifies a process of production, the product itself, and an economic transaction. Take the "Culture/Village Stay" mentioned in the report as an example. It involves

the observation of diverse cultural events and activities, and if desired and possible, experience of such diversity through a few night's accommodation in a village guesthouse. "PNG's diversity of culture," the report reads, "is unique in the world and provides the destination with a unique selling point (PNGTPA 2006:28). By "world," the report is referring to other possible destinations in a regional and global tourism marketplace:

> Private sector competitiveness is at the heart of the development of any industry. This is especially so for the tourism industry, as it is a highly competitive international market place and most countries are supporting the development of their own tourism sector. PNG is competing not just with regional neighbors such as Fiji and Vanuatu, but due to the specialist nature of the tourism products on offer, is also competing worldwide with countries further away, which offer other highly competitive products (for example Indonesia and the Maldives for diving, New Zealand and Nepal for trekking and India and Asian countries for culture). [PNGTPA 2006:61]

Conceived as such alongside extranational markets in Australia, USA, Japan, UK/Germany, and elsewhere, products such as culture/village stays and trekking become nationalized; they become Papua New Guinean. Diversity itself becomes a national product, and in doing so, produces a consumer who lives outside the borders of the nation.

If cultural tourism is to be sustainable, the report argues, Papua New Guinea must promote this diversity to the world while also providing value to Papua New Guinean people. The benefits of "Culturally-Based Tourism Products" are elaborated in section 4.2.7 of the report: they "reinforce and assist in the preservation of the unique and diverse cultures of PNG by adding economic value to cultural aspects and promoting cultural events and traditions" (PNGTPA 2006:62). These benefits must be known—there needs to be an awareness of this value. Noting that "some antipathy" exists toward the way in which the benefits of tourism have been spread in the past, the report suggests "ecotourism and community-based tourism offers some inherent advantages as a form of tourism that encompasses community values and the broad distribution of benefits" (PNGTPA 2006:62). By building on existing success stories[2] and

pursuing a "comprehensive tourism awareness campaign," the report suggests such antipathy can be resolved.

From the Nation to the Province

As the national tourism report was being drafted for publication, provincial governments throughout the nation were drafting their own reports. In 2005, an Australian consulting firm, in association with The New Ireland Provincial Administration (then governed by Ian Ling-Stuckey) and fifty-four indigenous and expatriate tourism operators from within the province published the *New Ireland Model Province Five Year Tourism Plan* (2005). Commissioned by the PNGTPA, this eighty-two-page booklet was designed to complement the PNGTPA Tourism Master Plan and contemporary provincial development initiatives. The plan's vision statement reflected a desire for development that was both sustainable and shared: "New Ireland will sensitively develop village-based tourism through its welcoming people sharing their varied cultural, land and marine experiences with respectful visitors, enabling the positive outcomes of tourism to be spread widely throughout the community." "A destination's vision," the plan continued, "must reflect its positioning (or desired positioning) within the tourism marketplace." To that end, "The New Ireland people welcome travelers to their land and many islands, their villages and traditional lifestyle and cultures, their natural abundance and an expectation of the unexpected…" (PNGTPA 2005:3, ellipses in original).

In becoming a "destination," New Ireland emerges as a distinct component of Papua New Guinea. As this happens, diversity within the province is assembled together under a single name, and is, for the moment, concealed. This institutional process of marking destinations complements the production of what anthropologists have referred to as the *tourist imaginary*: "the socially transmitted representational assemblage that interact with people's personal

imaginings and that are used as meaning-making and world-shaping devices" (Salazar 2012). Often constructed around preconceived dichotomies (Barthes 1972; Durand 1999), the imaginary creates a world that is *there* as opposed to here, *exotic* as opposed to quotidian, and that is generally situated in a spatial and temporal beyond (Crapanzano 2003). Composed by travel writers, documentarians, and/or promotional authorities, the imaginary is built of images, some photographic, others textual, which, in reflecting the experience of the writer's own worlds (West 2016), impose what Bakhtin (1981:84) referred to as "chronotopes"—forms of spatiotemporal connectedness—on other peoples and places (see also Lipset 2011; Stasch 2011). What results in a particular destination are parallel worlds of experience (Kahn 2011; Theodossopolous 2014), one inhabited by the tourist and their imagined hosts, who now have names and faces, and another inhabited by locals who either enter or avoid the tourist market.

If, as Leite (2014) argues, "the destination is neither the origin nor the object of an imaginary, but rather the materialization of it" (Leite 2014:264), then the promotion of destinations like "New Ireland" in fact promotes the materialization of imaginaries. Within that emerge parallel worlds, which from an abstract perspective may be studied "symmetrically" (Stasch 2014), but which in daily life may present moments of ontological incommensurability to those who find themselves stuck between image and reality (West 2016).

In the national report and on the PNGTPA website, New Ireland is marked as a destination. Potential tourists or investors are introduced to New Ireland through description of its natural beauty, cultural diversity, and rich history:

> Long, narrow and mountainous, New Ireland boasts undeniable beauty, peaceful people, never ending beaches, the popular Malangan show, the unique annual Shark Calling festival, game fishing and a history of explorers, missionaries, traders and Japanese armed forces. Discovered by Dutch explorers in 1516, it was not until 1877 that the first missionaries arrived. With the development of copra plantations New Ireland Province soon became one of Germany's most profitable colonies. During World War 2, New Ireland

> fell to the Japanese and many of the island's towns, infrastructure and industry was destroyed. The provincial centre of Kavieng is situated at the northern tip of the island. This area has often been described as a typical Somerset Maughan south sea island port. The port has a large, beautiful harbour and is a popular destination for game fishing enthusiasts. Along the edge of the harbour is Kavieng's Harbour Drive, a gently curved road, shaded by huge trees, which passes many points of historical interest. A couple of kilometres out of Kavieng, along the Buluminski Highway, a little pathway leads visitors off the road to a limestone cave filled with crystal clear water. [PNGTPA 2017]

Following this introduction, several products are listed and described. "Kavieng," with its cool sea breezes, is a "good place to wander around." "Artifacts" are listed next, and can be found in the forms of "Malangan carvings," "ancient stone tools and vessels, and a shark calling propellor" at the Kavieng Hotel, the Malangan Beach Resort, and in Libba and Utu villages. "Offshore Islands" are another product amenable to swimming and snorkeling. "Festivals" are promoted as well: namely the Luka Barok Festival which "celebrates old rituals and includes shark-calling and feasting," and the Malangan Show and Independence Day, both of which are supposed to be held in mid-September. Through these descriptions, the prospective tourist gets a picture of New Ireland. Products such as sharkcalling and the Malangan Festival are unique to the island, and distinguish it from regional and global destinations. To the outside world, "New Ireland" is presented as a singular place through the promotion of product that are unique to it.

It is also in the provincial tourism plan that "New Ireland" becomes singularly sociable—or in its authors' words, *personal*. The vision statement and the positioning statement it reflects are, as the plan reads, underpinned by three categories of description: "the key natural and man-made tourism experience characteristics, the 'best prospect' experience themes…, and the 'personality' of the province" (PNGTPA 2005:3). In later pages, this personality is described in a series of adjectives: New Ireland is "friendly, accommodating, tranquil, traditional, easygoing, and seductive." Through the tourism experience, visitors from primary target markets in the United States, Japan, Australia, Germany, and the UK (listed in that order) may engage with this

persona, and through that engagement, may learn about and participate in the island's "life story" (PNGTPA 2005:11). Having emerged as a singular personality, the *work* of the province (my term) with regard to tourism is then divided into five categories:

> 1) "village-based nature experiences";
> 2) marine activities including surfing, diving, sailing, and kayaking;
> 3) village-based culture experiences;
> 4) War history; and
> 5) adventure experiences. [PNGTPA 2005:11]

It is at this point that the second of two parallel worlds emerges, the first being a world-for-consumption (by foreign tourists), and then, through this five-part categorization, a world-of-production in which indigenous and expatriate "stakeholders"—owners of village guesthouses and larger resorts, guides, and instructors—are encouraged through requisite "awareness campaigns" to make the infrastructural improvements recommended in the report. Experience is envisioned as the point at which economic value may be added to traditional cultural practices, but for such value to be realized, change is needed at the provincial and the local level. It then becomes the responsibility of island-wide associations, elected politicians, and individual stakeholders to make such changes, and in doing so, to speak for the province as a whole.

One day, I met one of these stakeholders while traveling the short distance by public bus from Kavieng to Kaselok village. In the thirty-minute ride, he introduced himself as a tour guide and described the kinds of experiences the island had to offer. Upon hearing I was an anthropologist, and studying sharkcalling, malangan, and culture in general, my new friend asked me for more information—for "things to tell tourists." "Because of the cultural diversity here," he said, "it is difficult to say things about malangan and so on that are true." Well-aware that other anthropologists had been to the island (he knew all about Margaret Mead, for his uncle had met her once in Manus), he knew that people had written about New Ireland culture, but he told

me he had no access to their reports. Having recently arrived to the island, and gotten to that critical point where I realized just how *little* I knew about malangan and other matters, I struggled to provide him with the material he desired. Instead, I asked him a rather obstinate question: "Who exactly is your market?"

The problem, he said, was that the market was no longer there. People *were not* coming to New Ireland as much as they used to. "Before, they would come from Japan and Australia, mostly. Europe too. And sometimes from America." These days, he met the occasional visitor, who through his connections to locally-owned guesthouses in Kavieng him would contact him to lead a trip down the east coast of the island. With a hired car, or on a public bus, he would take them to one of several destinations easily accessible along the paved Boluminski Highway. Some of these guests would ask to swim in the crystal-clear river at Medina. Others would ask to "meet Cathy," a wonderful old woman who, since retiring as a world-traveling flight attendant, had created a destination of her own by handfeeding tinned fish to large and rambunctious eels in the creek running through her backyard.

Besides these occasional travelers, though, my guide-friend's business was struggling. He no longer got the surf and dive tourists he once did, and no longer hosted the large groups which once arrived from Germany and elsewhere to attend the cultural festivals. For years now, more than he could remember, there had been no "Malangan Show." The eponymous beachside hotel, once the jewel of Kavieng's waterfront, was in 2015 nearly shuttered. And the Sharkcalling Festival had not been held since 2013, "or was it 2011?" …nobody seemed to know. The problem was not only that there was no tourism, but that the promise of tourism had been promoted substantially throughout the island, and had not yet materialized. The anticipation was there, but foreigners and their money were not.

From the Province to the Guesthouse

I first encountered the provincial tourism plan in Tembin Village, in the Bibileng Guesthouse which had been built with the anticipation of these new international relationships. Moldy and half-eaten by insects, its decaying pages told a story of broken promise. Few, if any, of the recommended infrastructural improvements had been made outside of the village: During heavy rains, the west coast road was often impassible. The Bibileng Guesthouse and others like it throughout the province were cut off to all but the most committed visitors—those with serious interest in getting to know the island personally. Sharkcalling, listed in the report under the headings of both "nature experience" and "culture experience," was out of reach for the target markets, for it could not easily be combined, as the report recommended, with other thematic foci—with war history, adventure, and so on.

Back in Kavieng, in the New Ireland Provincial Tourism Office, I learned that infrastructural problems along the west coast were not the only issue. In 2015, following a misappropriation of funds by one of its now-former managers, the provincial government administration had cut off funding to the office beyond what was needed for basic operation. The lights were still on, and the office was still staffed by three very helpful, friendly, and well-educated New Irelanders, but they had no internet access, and thus no means of reaching potential customers in their primary markets. While village guesthouses on the west coast had been cut-off from global markets by the washed-out road and the consequent lack of tourist bodies, the office in the provincial capital—their liaison to such markets—was cut off by a lack of bytes. The Sharkcalling Festival, once envisioned as a model natural/cultural experience, had not happened in years: the only remnants of its existence were found in the decaying pages of

the New Ireland tourism plan and in two old (and quite beautiful) hand-carved signboards—one in the Bibileng guesthouse, and the other on the wall of the provincial tourism office.

During my fieldwork in New Ireland 2015 and 2016, it was apparent that village-based natural and cultural experiences, especially those along the island's rugged west coast, were not working in the way they had been envisioned ten years earlier in the provincial tourism plan. As a result, the national directive—to foster the "inherent advantages" of ecotourism and community-based natural and cultural tourism in order to resolve the "antipathy" said to exist toward the distribution of tourism income (and thus toward tourism itself)—had not been realized.

Figure 16: Building a Sharkcalling Canoe

This is not to say tourism was not working in the province as a whole. Surf and dive tourism in the 2015-16 season had declined from prior years, but surfers and divers were at least present in the resorts near Kavieng, and a surf retreat further down the Boluminski Highway maintained a steady flow of arrivals and departures. These resorts were not full to capacity, but were not empty like the village guesthouses on the west coast. As surfers and divers partook in their own tourism imaginaries, consuming what they had created prior to their personal introduction to the province, social and economic relationships continued to develop between they and their guides. These, of course, were not always reciprocal.

In *Dispossession and the Environment* (2016), Paige West describes how Australian surf tourism in New Ireland has "become another avenue for the reproduction of modernist forms and ideas about Western selves and 'others'" (West 2016:39). While the PNG Surf Association maintains a laudable record of financial contributions to local communities in the form of access fees to surf breaks, the kind of imaginings imported to New Ireland by Australian surfers in search of "undiscovered" waves and "raw" experience has placed some locals in untenable social positions, resulting in moments of worldlessness for those whose employment in the local surf industry is, firstly, reliant on seasonal weather patterns, and secondly, on the same kinds of representational practices that dispossess them of their ability to "directly access the vast storehouse of international capital that would allow them to direct their futures or even to direct the future of the surf tourism industry in Papua New Guinea" (West 2016:61). If, as Miriam Kahn has argued, "Fantasy and image, when intertwined with economic and political power, help to bring spaces and places into being" (Kahn 2011:97), West's account of surf tourism in New Ireland shows that the same representational and political practices condition the ability of real persons to determine their own presence in places, and thus, their own futures. While the

personal New Ireland may succeed in attracting and maintaining a global audience, the real people who have been encompassed into that larger persona through national tourism initiatives and foreign imaginaries are often left out of the exchange.

Dive Tourism

Surfing is just one of several tourist products available in New Ireland. Another is scuba diving, which attracts visitors from around the world to one of two resorts near Kavieng. It is useful here to distinguish surf tourism from dive tourism, for their imaginaries are different, their forms of engagement with New Ireland nature and culture are different, and so too are the possibilities that they may be successfully combined with village-based experiences for the benefit of local landowners.

If for Australian surf tourists the chronotopic signifier of New Ireland is "raw," then for visiting divers it is "pristine." Papua New Guinea is known among the global diving community for its diversity of soft and hard corals, its myriad tropical fish, and large pelagic species like sharks and manta rays. In a week-long visit, one may dive along sweeping walls, lush reefs, and on open-ocean "bommies," pinnacles which rise from the depths to within meters of the surface. In New Ireland in particular, divers come to see coral and sharks and intact wreckage from the Second World War. Once bloody and burnt, that wreckage is part of the pristinity too. Sunken ships and airplanes are culture encrusted by nature; by coral and algae and time.

Like the rawness desired by surfers, the pristinity of the dive destination emerges long before the excursion begins, and lasts, at best, for about five days. I say this from experience: My own first visit to Papua New Guinea in 2005 was motivated by desire of remoteness from where I was at the time—an undergraduate student in South Florida. I chose to do an internship at a dive resort in PNG because of all the possible destinations, it was furthest away. In my

mind, that distance equated to transformative potential: that which was furthest from here had the most chance of being different from here, and thus, of inspiring change in me. Magazine articles and photographs of PNG reefs compounded this desire, so much so that I did little research on what it was actually like to live in PNG before committing to a three-month residency. Culture, at the time, was more of an afterthought than a draw; and in fact I was thinking only about the diving. Spatial distance and its associated promise of transformative difference, combined with my own dissociation of people from the environment (for they were on land, and I would be underwater), led to a sense of ecological pristinity—something I dearly desired. At a time when my "home" reef in Fort Lauderdale was under threat by ongoing port expansion projects, urban runoff, shark fishing for sport, and warming seas, I desperately wanted to be someplace where none of that was the case.

After three months in PNG in which I helped manage a busy dive resort, negotiate with local landowners for payments, organize cultural excursions for divers on their last day of travel, and so forth, I realized that pristinity in the sense I once knew it did not exist. This was not because the reefs were not beautiful (they remain without question the best in the world), but because any "surface interval" longer than the requisite twenty-four hours before an outgoing flight makes one realize their own error of imagination: there are indeed people here, everywhere, in the land and at sea. Those people, whether local landowners or one's own assigned dive buddy quickly dissolve the preconception that the PNG experience is, altogether, an experience of pristinity. Culture, on land and sometimes underwater, always intervenes.

For some well-traveled divers with whom I spoke, there was a downside to culture: It involves people. Divers who come to New Ireland tend to remain underwater all day long for the duration of their week-long visits. Diving is what they have come here for, and it is only

between dives, at the day's end, or in the final "no-fly" day that they experience, by choice or begrudgingly, the personal New Ireland. During my 2015-16 fieldwork, numerous dive groups came through New Ireland on such trips, but none made it down as far as Tembin. There were two reasons for this. The first was, as mentioned above, that they spent all their time underwater. If they weren't underwater, they were at the resort sharing photographs of the day's dive, or at the restaurant recounting memories from this and other dive excursions in the past. Their last day was spent packing and relaxing, snorkeling or sitting on the beach, and generally soaking up the last moments before the trip home. Diving, especially a week of it, can be exhausting, and such relaxation is physically and mentally important before entering back into the "land" world.

There is a second reason why nobody at all made the trip to Tembin in the year of my fieldwork. Should any one diver have asked about seeing "sharkcalling," they would have been quickly disabused of the notion that seeing such cultural practice was possible or even desirable. Through conversations with expatriate staff and management in both resorts, I learned that the west coast was simply "too far" to travel on a single day road trip. On another occasion, I was told by a manager, half in jest, that "if they wanted to see sharkcalling, we could arrange it for them right here. Just give us a few plastic bottles, we'll crush 'em up under water, and you'll get heaps of sharks to the boat." Not only was it too far to travel to see sharkcalling, but it was apparently not even necessary.

From an expatriate manager at a different resort, the emphasis was not on the burden of travel, but on the ethical or emotional burden imposed on potential guests by sharkcalling itself. "Don't they still kill the sharks?" I was asked in response to my questions about possible visitation to the west coast. "They still do? Well then we can't be sending our guests down to see that. People come to see *live* sharks underwater out in Albatross Passage and places like that.

We can't be showing them dead sharks." Another time, a different expatriate dive operator informed me of the "hypocrisy" of the sharkcallers, who at once "wondered where all the sharks had gone" but were themselves culpable in the decline of shark populations. "They blame it on the foreign fishing fleets and longliners, but of course they can kill all the sharks they want. They still kill them, right? It's hopeless." When the same operator visited Tembin years before by boat, obviating what is truly an exhausting journey by car down the washed-out west coast road, he had in fact observed it reefs. Together in his office we shared stories of their beauty. "But," he said, "the landowners there became a problem. They would get suspicious, watch us all the time, and watch our divers to see what they were doing. It made them [the divers] uncomfortable. So, we don't go back. We have great diving right here."

It was not only that there was little "surface" time to see culture, but culture in the form of sharkcalling had been maligned as either generic, ecologically violent, or logically hypocritical. The tourist imaginary, insofar as it concerned pristinity, was being conditioned by the operators, who in their own valid interests thought it best to keep their divers submerged. And from a business perspective, they were right. Spatially, economically, and morally, sharkcalling as a tourism product was, and still is, beyond the beyond.

To the sharkcallers, who had through this imaginary and the conditioning of it been situated in an upside-down world—one of an anti-pristine, terrestrial, culture—the lack of tourists was palpable. The parallel worlds, to return to Kahn's term, had not yet had the chance to develop, for in between was a space—both material and conceptual—that divided the tourist from the guide. The four-bedroom guesthouse in Tembin in which I lived during my first six months of fieldwork had not housed a tourist in over two years and was itself beginning to decay. Only four times did anyone visit, and they were not tourists at all, but representatives from the

Provincial government, from Nautilus Minerals, and on one occasion, my own guests. Cultural tourism, which in the New Ireland Provincial tourism plan was conceived as both a primary product and a secondary product of surf or dive tourism, was nonexistent on the west coast of the island. Without promotion from resort operators, the market had dried up. Without promotion from the provincial government, who during the same time had cut funding to the tourism office in Kavieng, tourism along the west coast and in much of New Ireland was doomed to an uncertain fate.

A Different Kind of Tourist

Like everything in Mandak cosmology, tourists (TP: *turis*; M: *laxabus*) become distinguishable as such through their work. To the sharkcallers and their families, the tourist is the one who takes pictures. Asked to impersonate the tourist, everyone from age eight to eighty will make two circles with their thumbs and index fingers, place them over their eyes, and scan their head from side to side. With or without cameras, tourists are image makers.

If I were to present the previous argument in Tembin village—that no tourists had come in the past few years for nature- or culture-based experiences—I would be challenged immediately: "We had, oh…last year or the year before, tourists from France. Yes, from France. A film crew. They made a film about sharkcalling." Another time, I was told that "one, maybe two or three years ago, a tourist-woman visited from a newspaper in Australia." And several years before that, "a group from BBC came to film sharkcalling."

A documentary film crew was not the kind of traveler described in either the national or provincial plan, but to those in Tembin, they were tourists all the same. The relationship built between such crews and indigenous New Irelanders therefore effects the ways in which tourism is locally understood, assessed, and envisioned. Here it is possible to explain two phenomena—

the first being the suspicion with which those in Tembin have come to regard divers or other tourists (myself included), and the second being what ultimately became a refiguration of tourism by the sharkcallers during the 2016 Kontu/Tembin Sharkcalling Festival.

In 2011, the British Broadcasting Corporation aired an eight-episode series entitled *Human Planet.* Conceived in 2007 by BBC producers in collaboration with musician and activist Bob Geldof, the series was to become part of a larger project, a "Dictionary of Man" that would "use every available medium to create the largest ever living record of films, photographs, anthropological histories, philosophies, theologies, economies, language, art, and documented and personal accounts from people of every society across the globe." Ambitious in scale and budget, the project would "serve as a definitive record of us—Mankind—at the beginning of the Twenty-first century" (BBC 2007).

Each episode of the series begins with a defining statement about this "mankind." "Only one creature" reads narrator John Hurt, "has carved a life for itself in every habitat on Earth. That creature is us. All over the world we still use our ingenuity to survive in the wild places far from the city lights—face to face with raw nature. This is the Human Planet."

Perhaps as a gesture toward the origin of this now-collective humanity, the first episode of the series is all about the sea. Halfway through *Oceans: Into the Blue* (2011), and following a segment on extreme ocean weather, we are taken to the placid waters of Papua New Guinea. Floating on these glassy seas on a wooden canoe is an old friend—Blase Soka of Tembin Village.

The camera pans over Blase's shirtless body, alternating from extreme close-ups of his weathered skin to mid-range views of his muscled frame pulling the canoe through the water. Immediately it is clear that Blase's thoughts, actions, and even words will be made to exemplify the theme of the series: culture eking out an existence amid a raw and powerful nature. "In the

islands of Papua New Guinea," the narrator begins, "Blase is known as a sorcerer of the sea. Possessing the mysterious ability to summon sharks from the deep, he is one of the last so-called sharkcallers, a traditional hunting technique steeped in superstition." Blase then stops paddling and begins to speak:

> "Mipla sa usim ol spirit blong sark long tokim ol say bai mi save kisim ol shark na givem pawa long ol long kam long mipela long klostu lo kanu, mipela katsim."

This is captioned on the screen as:

> "The shark is a very sacred animal in our culture. We sing to the shark's spirit…asking it to allow us to catch it."

Having established a mythical aspect of this Papua New Guinean shark culture, the narrator then negates this mythicism by explaining, via Blase, how sharkcalling *really* works.

> "Blase respect ritual," Hurt pronounces, "but he also understands shark behavior. A rattle in the water mimics the activity of feeding fish. Sharks can detect these vibrations from three kilometers away, but they don't always respond."

As the camera zooms out to show Blase on an empty ocean, the narrative then moves from the extreme, bodily local to the industrial global by framing a problem in terms of temporality:

> "As industrial fishing decimates shark numbers, the waits [for sharks] are getting even longer."

In spite of this prolonged waiting, a shark finally arrives. "Appeasing its spirit," Blase lures in a grey reef shark (*Carcharhinus amblyrhynchos*), baits it with a small fish on the end of a stick, and carefully places a noose around its head. The noose is attached to a carved wooden float, which prevents the shark from diving back into the deep. Blase releases the float, and after several thrashing movements, the shark exhausts itself and settles into a state known as *tonic immobility*. Floating motionless on the surface, the shark presents itself to Blase, who may now gather it up and kill it with a club-strike to the head.

In the film, however, Blase *does not* kill the shark.

> "In the past," the narrator reads, "Blase would have killed the shark for food. But today he lets it go free. Blase is committed to keeping his sharkcalling culture alive. And this means keeping sharks alive."

The sharkcaller then justifies his own changed actions:

> "Namba blong sark, I wok long go daun na. Na wanem? Mi tingling long ol fusa generasin bilong mipela, behin nogut dispela kulsa blo mipela lo kisim sark." (The number of sharks goes down now. What of it? I think of our future generations, our culture of getting sharks will be no good after.)

As the camera pans out again to an aerial view of the ocean, the British narrator gets the last word: "And it's not just traditions that are threatened…" What is "perhaps the most dangerous fishing method of all…" The next segment moves out of Papua New Guinean waters to the world of Pa-aling compressor divers in the Philippines—something even *more* dangerous than sharkcalling, we may infer, because that which is endangered are not only traditions, but human lives.

Oceans: Into the Blue tells a story of human survival against a nature that is at once antagonistic and amenable to human action. The Papua New Guinean sharkcaller, like the Filipino compressor diver, has adapted to life in a dynamic world. Locally, that dynamism is exhibited through a relationship between man and beast, be it a spirited shark or a rusting air compressor. Through each relationship, global changes may be experienced personally: In Papua New Guinea, "overfishing" is experienced through "tradition"—the former endangering the latter's possibility by affecting the temporality of the sharkcaller at sea. In the Philippines, the same "overfishing" is experienced by the individual body, which has now become wholly reliant on a rusting model of modernity—the internal combustion engine—for its supply of air while at depth. Nature here is not red in tooth and claw, but has, with regard to culture, been made to exist differently at two distinct scales. Locally, nature is vulgar and raw, but is at the same time an accomplice to human action. In fostering different kinds of adaptation, local nature

is productive of the kind of visible human diversity that inspired Geldof and the BBC to produce their documentary.

On a global scale, however, nature is singular—it is a world that is pristine in and of itself because, barring extraterrestrial influence, *it is all there is.* Because of this, it is fragile; the systemic operation of this global nature—its organic ecological processes—are corruptible by human action. That action is itself cultural, but it is not the kind of adaptive natureculture exhibited in the waters of Papua New Guinea. With regard to this global nature, anthropogenic causes such as "overfishing" are maladaptive; they are harmful to the world as a whole and the many ecosystems within it.

In order to support this narrative, Blase's own actions must be visibly *cultural* (distinct from nature but adapting to it), and ultimately *sustainable*. He must not kill the shark. Speaking of Papua New Guinea directly to the world, the narrative conceals the nature of sharkcalling as well as the nature on which sharkcalling depends. This is not a mere omission, but a deliberate concealment—something done by the film's producers to maintain the conditions of existence of their own creation.

Repatriation

Following a brief trip home to the United States, I returned to New Ireland. Three weeks later, my wife Elisha joined me, and we made the long trip by road to Tembin Village. After days of formal introductions, we settled into daily rhythm of language lessons, fish identification work, and friendly conversations with old and new friends. One day, when a large group of kids and adults had gathered around underneath a large tree near our house, we brought out an iPad on which we had downloaded a copy of *Oceans: Into the Blue.* Scholars working in New Ireland and elsewhere have demonstrated how increased access to ethnographic objects or digital

representations of such objects has made possible new opportunities for cultural revitalization (Bell et al. 2013; Srinivasan and Huang 2005; Were 2014), epistemic revitalization (Drew 2017), and have been helpful in understanding and negotiating problems such as climate change (Newell, Robin, and Wehner 2016). With this in mind, we pressed play and watched everyone as they watched Blase. The living, breathing Blase was not present there with us (he was out calling sharks) but the video of him elicited the kind of friendly familiarity that accompanied the man wherever he went. As this two-dimensional Blase "inside" the screen sang and shook the lorung against his canoe, his sons and daughters and wife mimicked his motions. With each movement of the virtual man, his real relatives moved left and then right, crouching higher then lower, passing their invisible nooses around invisible sharks until it was all over.

Throughout the rest of the day we lounged around the shade and talked about the film. A while into our discussion, a friend leaned over and explained to me, quite matter-of-factly, that the entire segment on sharkcalling had been filmed in the Solomon Islands.

> Yes, they took Blase over there on the airplane and had the local boys build him a canoe. If you look at that canoe…see it there? It is not from Tembin. You can see the local boys in the Solomon Islands built that one. It is fresh cut, and the shape is different. See the front and back? It is different.

Astonished, I asked why the film crew would do that instead of filming right from Tembin, but the answers vaguely pointed toward some *hevy* (TP: disagreement) in the village about which of the fifty or so sharkcallers would be cast in the starring role. The more I asked, the more I came to realize the extent to which the producers had invented their own tradition. As I watched the segment again and again, I saw more evidence of this. Blase's opening lines about the "sacred" aspect of sharks are mistranslated:

> "Mipla sa usim ol spirit blong sark long tokim ol say bai mi save kisim ol shark na givem pawa long ol long kam long mipela long klostu lo kanu, mipela katsim."

Properly translated, Blase says:

> "We know how to use the spirit of the shark to talk to the shark, we know how to get the spirit to give power to the shark to come alongside us close to the canoe, then we catch it."

This statement is immensely important: at the very least, it proves the immanent existence of spirits by showing they too have a "work" like every other sociable thing. Nothing is said about "sacred animals" or in fact "culture." Rather, Blase says the sharkcallers know how to call on the spirit of the shark, recruiting it as a kind of medium to bring actual the sharks close to the canoe. The part about the rattle is partly true, though the rattle, once heard in person, clearly mimics far more than "feeding fish." It mimics the violent cacophony of a school of feeding tuna on the surface of the water—the pulsing bodies of tiny sardines darting to the surface, the tuna driving at them from below, and the gulls, terns, boobies, and frigatebirds assaulting them from above. All of this is masterfully reproduced in the sharkcaller's use of the rattle, and each sharkcaller has a particular rhythm which is handed down through generations. The rattling of the lorung, inasmuch as it reproduces private ecological knowledge to call in sharks, is both cultural and social. In being materially transductive (Helmreich 2007, 2015), it is both ontologically and epistemologically transductive as well; it is an exchange of information between the dead, the living, and those who will ultimately benefit from its work.

Probably the most pernicious fabrication in the film are the closing lines about sustainability, in which the narrator situates Blase in an ecologically noble role:

> "In the past," Hurt reads, "Blase would have killed the shark for food. But today he lets it go free. Blase is committed to keeping his sharkcalling culture alive. And this means keeping sharks alive."

The true reason why Blase did not clobber the shark to death after catching it is that the producers told him not to. Another possible reason is that, being in the Solomon Islands, the local sea-owners did not allow a foreigner to kill the animal in their waters. Had Blase been in

his home seas and under no obligation from a film crew, he most certainly would have speared the shark's eyes, killed it with a club, sounded his trumpet shell with one prolonged blast followed by three short blasts and another prolonged one, paddled the long journey back to shore, and collapsed from exhaustion on the beach, supervising his sons as they quickly cut up the dead animal into carefully measured segments and distributed its parts to a series of younger "runners," each of whom promptly delivered the cube of dull grey meat to their mother or grandmother—each of whom, having heard the characteristic blasts of the trumpet shell, had prepared a small mumu in their family hearth.

When a shark is caught in Tembin or anywhere along the west coast, it is killed. If it is any consolation to those who desire sustainability in Blase's actions, I have seen that each shark is quickly and unceremoniously dispatched and distributed to certain families within the village; all of it is used, from the flesh to the intestines, which are carefully washed in the sea by young girls. The liver, which in all sharks comprises a substantial percentage of overall mass, is highly regarded. The fins, or "wings" as they are called in Tembin, are dried out on clotheslines and eventually tossed in a bag to be taken to an expatriate white man in Kavieng who sells them abroad. Considering the industrial-scale sharkfinning operations that exist in other parts of the Pacific, Southeast Asia, Africa, Europe, and South and Central America, it is important to mention that the sale of fins by those in Tembin is nothing more than occasional income—a few extra Kina attached to the back and sides of what is otherwise a good source of "protein."

My purpose here is not to argue that the BBC got it wrong, or that documentarians should all be anthropologists (although a lesson on Malinowski's "preconceived ideas" versus "foreshadowed problems" [1922:8-9] would help a great deal in avoiding rushed timetables and untruthful plots). Instead, my purpose in focusing on this particular documentary has been to

explain the historical circumstances of this and other recent representations, which in Tembin have led to a general suspicion of tourists and ultimately a rejection of foreign tourism initiatives in favor of a self-determined tourism—one by west-coast Mandak for New Irelanders (or for anyone else who may happen to stumble in from over the horizon). Recent global interest in sharkcalling has come *after* the promise of tourism from foreign nationals has been promoted within New Ireland, at a time when the object of the endeavor cannot ethically be killed. The consequence of this conjuncture is the erasure of place—the conditions of possibility of the relationship between sharkcaller and shark; of the expression and its attentive audience. But it has not always been this way, and does not have to be.

In the early 1980s, anthropological filmmaker Dennis O'Rourke spent over a year living in Kontu and Tembin. In what became *The Sharkcallers of Kontu* (1984), O'Rourke's was not concerned with global ecological change, but rather, with cultural change as a result of capitalism and Christianity seeping into indigenous ways of life. Accordingly, the death of the shark at the end of a particularly memorable sequence was not significant as it was in the BBC documentary. The protagonist here is the late and legendary sharkcaller Selam Karasimbe of Kontu village. Exhibiting phenomenal strength, Selam kills a shark in the way it has been done since at least 1643[3]. What was more significant to the filmmaker than the shark's death was that its fins were sold to a Chinese shopkeeper in Kavieng in exchange for cash, which local boys used to buy beer and get drunk.

A testament to the filmmaker's commitment to Selam and his place stands prominently on the land of Selam's decendants in Kontu, where, on a concrete tombstone, a polaroid picture of the sharkcaller and the filmmaker has been permanently affixed. Today it is only a slight

annoyance among those in Tembin that the film bore the name of Selam's wife's village and not their own.

At the time, just a decade after *Jaws* (1975), it was acceptable for O'Rourke to show a shark being beaten to death. Today it is not. With an estimated one hundred million sharks killed annually, largely by the sharkfinning industry, all modes of killing sharks, be they traditional or commercial, have come under due scrutiny from international environmentalist organizations and the publics on the receiving end of their warnings. In the BBC documentary, had Blase killed the shark, the entire structure of the narrative would have been killed as well. If he had killed it, Blase would no longer be the exemplary human eking out an existence amid a locally powerful nature. Instead, he would have transcended the local and the category of the human, becoming an agent of global overfishing—an iteration of profane culture amid a pristine, worldly nature. Sharkcalling Culture would cease to exist as such, much in the same way it has ceased to exist as attraction to ecologically-minded dive tourists in Kavieng. Because those in Tembin "still kill sharks," Sharkcalling Culture as an international tourist product is inevitably doomed. Because it refuses outside attention, it appears to inhabit a desultory state, what in Mandak is called *A kis kandiong* (M: I sit here alone, with no clan).

Delayed Return

Tembin, Kontu, and the village of Messi to the south have had their share of visits from documentarians and journalists. Inevitably, these have been white people from Australia, America, or Europe—who by all means fit the image of "turis" as it has been promoted in national and provincial tourism initiatives. With each arrival (and truly every arrival) comes an expectation of exchange: *you white people make your pictures, and put us into your little boxes*

Figure 17: A Sharkcalling Canoe

and screens, and we get something in return. That return, or rather the expectations of what it should be, is the point of difference between the film crew and the imagined tourist; it is the point at which local animosity toward tourism has come to be perceived by Kavieng-based tourism operators as "greed," but also marks a generative moment in which tourism has been reclaimed and culture relocalized by those on New Ireland's rugged western shore.

In the tourism initiatives of the early 2000s, the return of potential tourism was explicitly monetized. Recall in the national PNGTPA report where it was argued that "culturally-based tourism products reinforce and assist in the preservation of unique and diverse cultures of PNG by adding economic value to cultural aspects and promoting cultural events and traditions (PNGTPA 2006:62). From the perspective of those in Tembin, who along with the late Selam

Karasimbe and others contributed to the production of the provincial tourism plan, this money was expected from all tourists: *Come make pictures of our sharkcalling culture, satisfy yourselves with what you came for, and then go home, leaving us with a bit of money for our time and effort.*

Had the western road been passable or the internet in Kavieng been activated, it is possible that a few more tourists would have come to see sharkcalling, and somehow grappled, like spectators at a bullfight, with their own emotional reactions to the final and inevitable death of the animal. But they have not come. The only white foreign visitors to Tembin are those who have come all the way to New Ireland with the explicit purpose (and budgets) to produce commercially viable representations of sharkcalling. The problem is, those hearty souls have introduced themselves to those in the village not as tourists (or takers of pictures), but creators—makers of pictures; agents of public awareness and social change. Their productions will, they inevitably say, help the sharkcallers preserve their "dying" culture. During my time in New Ireland, several of these filmmakers came through the island or contacted me about setting up a visit, and still today I am contacted every few months to provide "on the ground" production information. Inevitably, when it comes time to discuss payment to people in the village—to those who will be on camera or those behind the scenes, usually women, who make it all possible—the conversation ends. The simple fact is that white people who come to Papua New Guinea with interest in documenting what they imagine to be dying cultures for the benefit of humanity think they are doing those cultures a favor by revealing them to the rest of the world. The kinds of diversity they are after are not experiential, like the tourist, but are representational: they seek images of a diverse, yet singular, humanity.

The problem with this is that when humanity is generalized, the transactive element of the visitor/host relationship is negated. *I am doing you (and our shared humanity) a favor by coming all this way.* And yet, something of value is still produced out of the relationship, the least of which is the relationship itself. To whom is owed payment for that production? Is it a particular person? A clan? When the object of foreign extraction is material—say, gold or copper—there are protocols and precedents in place which allow for the assessment of payments and the identification of those who will receive them—be it a single person, a clan, or more recently in draft versions of a national seabed mining policy, a "coastal area of benefit" (see Filer and Gabriel 2017). But who receives compensation when the object extracted is pictorial in nature? When no visible harm is done, but when, following the production and exportation of such images, the tourist is satisfied but the living subjects of their imagination are not?

The effects of the BBC documentary and other recent, smaller representations of village life in Tembin have been substantial. I have focused here on the BBCs representation because not only is it inaccurate; it is largely fraudulent. It demonstrates better than the half-dozen or so YouTube videos about sharkcalling that, through preconceived thematic representation, the actual conditions of possibility of existence of certain lives and livelihoods—their grounds, in both an ontological and physical sense—are abstracted from the narrative. With it is lost the possibility of equitable exchange. Through coordinated placements, perspectives, and careful edits, the environment—neither *natura naturans* nor *natura naturata,* but what I am calling nurtural history, is left out of the picture. When the film crew took Blase from Tembin to the Solomon Islands, falsely nationalized those waters as "Papua New Guinean" (which in turn falsely nationalized Mandak waters), commissioned a canoe for him that was not hewn from Mandak timber and did not resonate as such, and scripted a happy ecological ending to his

sharkcalling adventure, they effectively shortcutted the land, dissociating practice from place. In putting their virtual nature above actual nature, they made reality out of its image, and left unpaid all the debts incurred by that reality in its path to the present.

To make this clear, try for a moment to consider the infinite series of past social actions that provided Blase with the knowledge and strength to call and catch large pelagic sharks. Consider the event of sharkcalling as a malangan mortuary ritual from Chapter Two, with the sound of the lorung as the mumu. The land itself—the taro and sweet potato from his mother's ground and all the sweat and effort that went into its production—that is just one of many factors that allowed the moment of presence between Blase and the shark to happen. Considered in their entirety, these forces of substantial and spiritual nurture make it clear that it is in fact Blase's living clan and dead ancestors who together call the sharks, not only the man who holds the lorung. Accordingly, because the Soka land (as part of what is called Tembin) enabled the star of the show to call the shark, that man is obligated to repay something of substance to the land—or more immediately, to its people; his kin. Because he is in the Solomon Islands, and because he has not been able to kill the shark, he cannot do this. The *hevy* in the village I spoke of earlier was no doubt a controversy over the expected or actual distribution of contractual benefits, be they fame for the sharkcaller, protein for Blase's network of kin, or the royalties that, it was hoped, would one day return to that network as payment for the BBC's representation of Mandak sharkcalling culture, and payment from the world for having seen it.

The BBC did in fact give something to those in Tembin. They invited a small group of men led by Daniel Soka to England to participate in a Human Planet-themed exhibition in the annual exhibition known as *BBC Proms*. With much assistance, the group traveled from Tembin to Kavieng, Kavieng to Port Moresby, Port Moresby to Singapore, Singapore to London-

Heathrow, and from there to the Royal Albert Hall. Along the way they obtained passports, shoes, warm clothes, and according to one unnamed source, an emergency ration of betelnut. At the hall, they performed in front of thousands, including the Queen. The stories of that trip are still told around nightly fires in Tembin—stories about the automatic sliding glass doors, the hairdryers in the hotel room, the grotesque bananas in the complementary hotel breakfast, and more poignantly, about how each of the men wept when, after crossing London Bridge, they encountered a homeless man—a "trupela turango," they still repeat around the fire in sorry disbelief.

The question of compensation is a difficult one here as in all cases of extraction in PNG. It is impossible to say if the trip to England was sufficient in reciprocating the time and effort and revelations of private images. What lingers is a sense that more is desired from this and other encounters with tourists. This is not greed, but rather an expectation of *ongoing* exchange. The figurative account book opened by the BBC remains open, they having left with images of sharkcalling culture in their luggage and not returned since. As the saying goes, *I no rong yet.* But something isn't right either. There remains on the west coast of New Ireland an expectation of return tourism and animosity with regard to its prolonged delay.

Summary

During the Kontu/Tembin Sharkcalling Festival, this animosity was directed inward, a turn which resulted in the suspension of expectation of foreign tourism. In terms of Presence, what happened in the final day of the festival was a turning away from the specter of foreign difference (me and my guests included) and a redirection of attention toward the many linguistic groups already present in New Ireland. On that day, prior to the aforementioned Shark Drill, a series of speeches were made by those VIPs on the grandstand. It had rained on and off,

sometimes torrentially, so much that the two representatives from Nautilus did not even show up on that final day. They instead drove back to Kavieng, foregoing their opportunity to provide further "awareness" about the pending Solwara 1 project. With their talk off the agenda, others had more time to work the microphone. And that they did, to all who had remained around the muddied festival grounds to listen.

Overwhelmingly, the speeches focused on one theme: taking ownership of culture. I find it important here to include a transcription of a speech by the head of the Provincial tourism office, not because his words were the most charismatic or inspirational, but because they come from a man positioned uneasily between the past and the future of tourism. Approaching the microphone, he said in Tok Pisin:

> Good afternoon everyone. I speak for myself and my (female) colleague in the tourism office. I am very happy to come here today. First, I want to apologize, to offer apology from my office for not coming the first day or second day. We have a little trouble with the office, not allowing me to come, and so we have not come here with you until today. I think the weather was alright, some men went to solwara, but still did come up with anything. Still, that is alright, *I no rong*. This festival of ours is a big thing that has come up. Before I continue I want to acknowledge all of our bigmen who have come up. Members of the Assembly…Honorable Ward members for Ward 21 and 20. Former Governor of Eastern Highlands Province Malcolm Smith-Kela, and your friends with you. Welcome to Kontu/Tembin Sharkcalling Festival. I hope all that you look at, you look good at, talk about it, then other men can come up after. All those from the office of the Governor, thank you to you all today. NBC (National Broadcast Corporation of Papua New Guinea), Miss, I mean Mrs. [unintelligible]. All bigmen and women of *peles,* you too. If you weren't here, this festival would not have come up.
>
> Just little talk that's all. This sharkcalling festival of Kontu/Tembin. This festival belongs to whom? Organizing committee? Kontu, Tembin, Ward 20 or 21? I ask you all this question. The ways of those of us from here in New Ireland must change. The ways of PNG must change. We have this habit of standing up and looking. We stand and look at all men doing things. Will it come up good or no? Hear this question of mine and think, think of it in your *bel* (TP:core, soul). This festival is not for us here on stage. This festival belongs to all of you. It is about time all of us must take ownership of festival, and work hard for it. This is a good festival now, and may it come again like this for a long time after. With tourism, we all have two big festivals that pull people inside the province. You have the…you *had*, the New Ireland Malangan Show, and this Kontu/Tembin Sharkcalling Festival. Malangan show is finished. I think the last one was early 90s.

> Since it has been finished, visitation to the province has fell down. Now we have little festivals which pull in tourism into the province. These festivals decline.
>
> I don't have too much talk, I want to issue a challenge to all men, women, young, old everyone, big men and young men alike. Because when the old men go, you young men will take over (Audible support from maimais in audience). This festival is not just to show something about how to hold the shark, how to catch the shark. It is our culture. It is something to hand over to our young people. When this sharkcalling festival is finished, who will teach all our young people? It is no longer time to sit around at look at things going by. It is about time we take ownership of the festival, and standup and ask, "What can I do?" [said in English]. The Sharkcalling Festival is not for this committee only, it belongs to you and me together, all of us, because it carries name *Kontu/Tembin*. After, the festival will come up good. Thats all my talk, thank you true, festival. Good thoughts for this festival. (Audible support from *maimais*).

As evidenced in this speech and in the long conversation about tourism the night before (for most of which I was not present), a working solution to the problem of compensation for representation exists, but it is not to be found in provincial or national tourism plans or in the chartered advice of foreign consultants. It has come from the people of New Ireland in a creative and collaborative response to accusations (some of which had been their own) that the expression of sharkcalling culture in the Kontu/Tembin Sharkcalling Festival had "failed." When, during the festival, no sharks were caught, some of those in attendance deemed the festival a failure for that reason. Such an assertion marks a kind of doubled ignorance: Not only were they ignorant to the many aspects of sharkcalling (as I too am), but they failed to acknowledge their own ignorance of such things.

As I proposed in Chapter Two, within every living being is a concealed interior—something that at once internal and prior to it which cannot, for the sake of that being and the sake of the encounter, be revealed. Those who said the festival was a failure had themselves failed to recognize Sharkcalling Culture as the "skin" which encompassed a deeper, nurtural history far more extensive than "meaning" or "function." This history is the terrain out of which "Sharkcalling Culture" has come into the present—the forces of material and temporal nurture

which brought it into view as such. Ignorance of such a nurtural history is ignorance of the environment itself—socially and naturally conceived. At the same time, it is ignorance of the kinds of ontological obligations incurred when viewing such expressions.

Returning to the question of the object of compensation or reciprocation, we see in the above speech how those in New Ireland have resituated the hopefulness of the tourism encounter in their own island, and in doing so, have closed a socioeconomic loop that was left open by the BBC and other visitors. By taking ownership of the festival and turning their marketing efforts to other language groups within New Ireland, they have repossessed difference *within* the province. "In future years," I heard them say, "we will bring tourists from *Barok, Kuot, Nalik, Tungak*, and other language areas." The global market has thus been made into a local market, and vice versa, effectively expanding the territory across which new expressions of Sharkcalling Culture may one day return. It is the territory—the land itself and all the clans living within it—that then becomes the subject of reciprocation; the one to whom attention is owed, and to whom it is given. That land, in coming into being, was proven worthy of a name: *Tembin.*

Figure 18: Tembin

[1] The "begpacker" is an even more frugal version of the backpacker. Often from Europe and the Americas, begpackers will reject even the cheapest hostel stay and public restaurant, instead relying on the kindness of strangers for meals and lodging. The trend seems to be on the rise in PNG.

[2] In PNGTPA 2006, the benefits sharing programs of the Surf Association of PNG and the PNG Dive Association are cited as successful examples of community-based tourism. In New Ireland in 2016, the surf programs were widely reputed to be successful, but the distribution of benefits from dive operators to New Ireland landowners had been suspended.

[3] The explorer Abel Tasman included a drawing of a party of seabound sharkcallers in his ship's log dated to 1643.

CHAPTER SIX: *SOUNDING SOVEREIGNTY*

You must not point at the shark. You must not look back.

-Instructions to a new sharkcaller.

In the two preceding chapters, I have presented what I am calling a *nurtural history* of Solwara 1. This is a story of how, as the composite form of Deep Seabed Mining and Sharkcalling Culture, it has come to exist as a social being in the Bismarck Archipelago. To some who have met it, it is a mining project. To others, it is an environmental threat. It is at once "not good" and "inevitable"; a "dangerous experiment" and "promise." From any perspective, it seems to still be alive. At the time of writing, the submersible mining machines have arrived from overseas, and have been tested in PNG waters near Port Moresby. Their mothership is nearing completion in a Chinese shipyard. In spite of local and global resistance, the extraction phase of Solwara 1 is set to begin in early 2019.

It is exactly this progress that exposes Solwara 1 to critique in the way I have proposed here: through a rhythmic political ecology which makes apparent the forces that have accelerated or delayed this strange new being's arrival in its present form. If for no other reason than because it has been called "inevitable," Solwara 1 is a rhythmic being. Like the mumu from Chapter Two, it may be interrogated through questions of timing and speed.

To conclude this dissertation, I begin with a summary of Presence and clarify how it may be applied to Solwara 1. Then, I turn my attention to the topic of property relations, and look outward from New Ireland to Melanesia, Australia, the Pacific, and North America to distinguish between customary marine tenure, state sovereignty, and states of sovereignty. I conclude with a return to Tembin to show that sovereignty as I have come to understand it in this case has been a matter of nurture and of making that nurture apparent through acts of positioning and speech.

Re-presenting Presence

In an abstract sense, Presence can be thought of as the relationship-in-place. However, the moment it is abstracted, or rather, the moment one abstracts themselves from such relations in order to represent them in language or text, the critical capacity of Presence—what it can tell us about the world—is diminished. That capacity—the *work* of Presence—is none other than to reveal something of the environment out of which the emplaced relations has become possible.

When we direct our attention toward the emergence of phenomena in specific places and at specific moments, they become intelligible as monuments to their own origin—as embodiments of the space and time out of which they have come. Spatially, such monuments become conceivable as such through apparent or suspected difference, which is always the result of movements out of and back into *place*. Difference emerges when it becomes clear that arrivals have indeed been someplace else. This difference does not, at first glance, mark the form of the arrival as a particular species or type, but rather, it signals a space of differentiation—a terrain, the work of which becomes apparent in moments of presence when the expressions of the arrival meet the expectations of another; when one's realisms meet the other's virtualisms. The 'thats' of the world become indexical only because they have been away, have engaged in unseen relations with other beings in these other spaces, and have now returned bearing some impression of those relations. Again, it matters little whether that impression is formally apparent or is merely suspected. For the sake of the relationship, all that matters is that something of one's recent history is concealed, and that through a measured balance of revelation and concealment, one attracts the attention of another. Inasmuch as this spatial journey occurred before the present, this seductive metaphysics has a temporal dimension, too. The relation lasts only as long as attention is maintained, which is to say it lasts only as long as a

degree of difference is maintained between the expression and their audience. Should one's attention be diverted, intentionally or accidentally, or should the difference between these two relatives be negated by what I have described in Chapter Two as "consumption", the relation, emplaced as it is, comes to an end. For a second, an hour, or for many years, the two relatives depart each other's company. This absence, or relational death, makes possible (but not certain) their future reunion, which, because the other has been away, always involves the realization of new differences, each of which signify (or can be made to signify) "what happened" in the interval between departure and return. It is through this rhythm of presences and absences, of lively notes and suspenseful rests, that the temporal prior is folded into the spatial beyond. In and out of place, the space of one's journey becomes conceivable by their other as history. Time, as duration, becomes *environment,* which then becomes empirically accessible through a simple question: *U pas Mia?*

What I have summarized in the above paragraph appears to be a socioecological model of life, which may or may not have been informed by factual encounters with Mandak-speaking peoples in New Ireland. As Carrier (1990) emphasizes, "ecological models, like all models, require not just facts but the organization of facts in particular ways. Models develop in response to particular problems, questions, and ways of thinking" (Carrier 1990:150). While Carrier distinguishes "Western" ways of modeling from those expressed by coastal fishermen on the island of Ponam at the northern edge of the Bismarck Sea, I found during my fieldwork in New Ireland that such distinctions limit the ways in which certain ecological practices may be seen as creative, reactive, or mimetic—in short, as transgressive of the categorical oppositions that may be placed upon them. People organize what is factual to them in innumerable ways, integrating or omitting categories of thought as they see fit at that particular moment.

I do agree that models develop—are developed— "in response to particular problems, questions, and ways of thinking" (Carrier 1990:150). Presence is evidence enough of that. The problem I am responding to is ultimately one of territorial and representational sovereignty: How are social relations politicized to establish or demonstrate enduring relations in "deep spaces"—those that have, through narratives of remoteness or the reification of what appear to be physiological boundaries—been alienated from peoples who depend on them? Yes, Presence is a kind of inscription, but it is also a structure constructed around the simple yet definitive claim that deep seabed mining "is not good." It is itself not a representation of Mandak realities but has been constructed to allow such realities (whatever they may be) to resonate within (and sometimes in spite of and outside of) a binary and two dimensional logic which attempts to structure the histories, presences, and futures of social relations in the Bismarck Sea.

Such constructions take time, effort, and coordination to build. They are not for nothing, but foster certain ways of being in the world. Consider, as an example, the construction of my bungalow in Tembin. That project, which began early in my fieldwork and was completed just weeks before my departure, was undertaken in response to certain desires and interventions on my part, on the part of my host and village father, Daniel, and on the part of my brothers and the many other people who contributed to its construction. When it was finally finished, I was nearing the end of my fieldwork in Tembin. As I had promised to everyone upon my arrival, my wife finally arrived from the United States. After introductions and some custom work with a hired maimai, she was allowed to walk up the wooden stairs into the house. From then on, the house became a respite for both of us when village life or the afternoon heat became overwhelming. After sweltering Sunday *lotu* (TP: church), we would retreat into the cool darkness of the house and sleep for an hour to recharge our social batteries. What I realized

during one of those feverish naps was that the house had not been built *for* us, but rather, it had been constructed *around* us. It had been built to give resonance to the Patrick-Elisha relationship—to make it flourish amid what everyone knew was different kind of life than we were used to at home. This had consequence for the present and the future: Once we had been reunited in Tembin, we were quickly initiated into our respective clans—she to my father's clan, and me into the clan of my mother, brothers, and sister. Our relationship then made possible transactive futures among and between these clans. The model (in this case the house itself) enabled the method—the sociality through which we became part of Tembin life.

Models, like malangan, are therefore not only reactive; but because they make possible new problems, questions, and ways of thinking, they are proactive and provocative. They not only give resonance to other beings or structures, but can be used to understand such beings or structures. In other words, the object around which the model has been built can itself be known through the model. The Patrick-Elisha couplet can be known by the amount of time it spends in the house, what modifications it makes, and so forth. It is at this point that the audience, the ones using the model to produce knowledge of their object, become its subjects. If, as the saying goes, it takes a village (to build a house out of bush materials, or to make a statement like "it is not good" resonate), then it takes an individual, positioned in space and time, to do the reverse—to analyze the conditions of possibility of that which is being made resonant.

A return to the musical metaphor is useful here. Consider the concert hall. While it may be possible in a given hall for each member of the audience to isolate, say, the sound of a singular violin out of the larger orchestra, the dynamics of that particular sound will be different to each of those present. Because of the structure of the hall itself, the violin will sound different to a member of the audience in the first row than it will to someone far in the back. The relation

of each audience member to the singled-out violin comes about through their position within the hall, and only once the music has begun.

Inasmuch as each individual experiences the sound of that single violin personally, they have agency in the relationship. Should they desire to modulate the sound-experience, they can do so quite easily by moving to a different section of the hall. Should they be irritated by it, they can refuse to listen through the simple act of muffling their ears.

Not only sound, but society may be modulated accordingly. In his 1966 essay on the prospects of electronically recorded audio, which at the time was new and provocative, the pianist Glenn Gould questioned the future of the relationship between the composer/musician and their audience. Gould saw promise in the mediated aural experience, but also paradox. "The ability to obtain in theory an audience of unprecedented numbers," he wrote, "obtains in fact a limitless number of private auditions" (Gould 2005:122). While not explicitly Marxist, Gould's sonic futurism implied a historical struggle between the composer and their audience, one which could be overcome through everyday means. The "participant public" he writes, through "dial twiddling" and other measures, "could emerge untutored from that servile posture with which it paid homage to the status structure of the concert world and, overnight, assume decision-making capacities which were specialists' concerns heretofore." While the composer continues to produce the music, the newly-ordained *participant listener*, with their synthesizers and equalizers, makes the music their own by "imposing his own personality upon the work." As this happens, Gould writes, the listener "transforms that work, and his relation to it, from an artistic to an *environmental* experience" (Gould 2005:122, my emphasis).

"Environment" in this sense is not a home or a landscape or an ecosystem but rather a spacetime of possibility out of which emerge all possible experiences of the other. It may be

experienced presently, as the violin and their multiple audiences experience the concert hall, or the Patrick-Elisha couplet experience the village house. Or, it may be reproduced retroactively through a close listening and analysis of such relations.

This has important implications for environmentalism (both scientific and activist) at a time when state and corporate authorities, often working together, are turning underground, deep under the sea, and even to outer space for resources. Environments which are for some reason unavailable or resistant to aesthetic experience—which, to use Gould's term, afford private auditions at the expense of others—may be rendered sonorous[1]. They can "sounded" through the interrogation of their productions, and in turn, be shown to have modulated the timing of such productions. Environments, whether "deep" or readily available, may be apprehended sonically, which is not to say only through the medium of sound. With regard to a certain emergence—a shark or a mining project, for example—they can be characterized as frictional or smooth, either slowing down or speeding up that arrival into view. The topographic variation that can then be said to exist in a certain environment is not obtusely geometric, but first and foremost, is agentive and historical. If it can be called "montane" or "estuarine" or "urban," it is only because that which has emerged from it, upon answering the question *U pas mia?* has in their response indicated a recent foray through such terrains—a journey that once spoken becomes more or less plausible with regard to the timing of their arrival. Whereas Deleuze and Guattari (1987) make a distinction between "striated" and "smooth" spaces, drawing on the sea as an example of the latter, I argue here that the texture of the environment, and thus, what makes one environment distinct from any other, is on one hand due to the kinds of relations certain elements of that environment make possible, but on the other hand, is relative to a certain presences and certain dispositions made possible by that environment as a whole. In either case, what we are

talking about is speed—the durations of past relations, and how those durations, in sum, determine the timing of the present.

Having summarized Presence and identified speed as the point of analytic or critical intervention, I now return to the idea of rhythm to see what such a model might reveal about Solwara 1, and what it might enable for those in New Ireland and for other coastal peoples on the horizon of such deep developments.

Solwara 1

Presence alone is only one kind of inscription. Like the models differentiated by Carrier (1990) as "Western" or "Ponam," it can be relativized among different contexts. Such relativism, while culturally conscious in nature, tends to lose its political teeth, something Wagner (1975) and then Latour (2004) warn us about in their respective moments. There is a tendency today for models, be they ecological, epistemological, ontological, or otherwise, to correspond to worlds or life-worlds (*Umwelten*). But on the other hand, there is at the same time a tendency for models to correspond to a singular world at the expense of biological, cultural, and/or historical difference. Like most models, ecological or otherwise, Presence is also at risk of abstraction from the conditions of its own possibility—from the anthropological encounters, historical conjunctures, and personal meditations that brought it into existence. Should it become understood as strictly a Mandak reality (which I have affirmed it is not), it might be used to explain or foreshadow experiences in Mandak territory at the expense of other, possible explanations. On the other hand, should it lose sight of Mandak territory altogether, and become something universal, it may become available to those in other places who wish to resharpen its dulled teeth without obligation.

Recalling Aileen Moreton Robinson's critique of the concept of *terra nullius* in Australia (Moreton-Robinson 2004:75-88), Audra Simpson describes the way in which one person's account of reality (in this case, Captain Cook's denial of indigenous land tenure) has the power to not only define difference but, through time, "to establish presence by establishing the terms of even being seen" (Simpson 2014:100). As I have discussed in earlier chapters, this same notion of terra nullius, which is in a way manifest in the 1982 UNCLOS Agreement, has precluded the recognition of the presence of New Irelanders in the Bismarck Sea.

With this foremost in mind, we may expand Carrier's (1990) description of the model, which now includes more than just facts and their organization in different ways, but now must also include a general ethic of care for the specific conditions of the model's possibility. Models, like malangan, must be grounded in present methods—in time spent with real people, places, and practices in the world. In order for this to happen, methods must utilize tools—implements (or instruments) of knowledge production which conceptually link and physically imbricate the practitioner with the terrain itself.

Adding a critical dimension to Lefebvre's formulation of "rhythmanalysis," I understand this method as a political ecology that looks beyond forms to the rhythms of their emergence, and which therefore offers ways of knowing and critiquing development in deep nature—in spaces that, through colonialist narratives, dispossessions, and legislations grounded on both, have been alienated from those who in some way depend on them. The tools to be used in this method are a set of critical questions that can only be asked and answered through one's own presence, and that concern force and speed. *Who has accelerated the arrival of objects into view? Who has delayed their arrival?* If we consider, via Presence, that the mutual emplacement of an object and its audience produces, in an instant, space and history, or rather

space as history (and vice versa), then the empirical nature of these questions becomes clear. Insofar as questions of force and speed are aimed at a particular nurtural history, they reveal a kind of political evolution—a genealogy of the world as it is in a single moment. All of this begins with the question *U pas Mia* (from where have you come), and ends in an origin story that is at once a representation of space and time.

Solwara 1 embodies its own nurtural history, but the body it presents to us, insofar as it attracts and maintains our attention, remains hollow. When we ask of it, *From where have you come?,* the answer it gives us is incomplete. It presents to us a "skin" within which is concealed other embodiments and their own, deeper histories. These histories are conceivable as the internal organs which enable its work as social being. In this analysis, I have distinguished two of these components (or subrhythms): the first is "Deep Seabed Mining" and the second is "Sharkcalling Culture." Each signifies a set of relations, which can be situated in other relations at specific moments in specific places: to presences which last a certain amount of time because it is in their interest to do so. Each of these presences have emerged out of other presences, each of which go back in time and outward in space to an epistemic beyond, which exists insofar as it is beyond to *us.* In Chapter Four, I asked what forces brought "Deep Seabed Mining" into view at a certain moment in New Ireland. By beginning with an article in *Nature* advocating increased regulation of human activities in the deep sea, I have shown who and what forces discovered the deep sea, and then distinguished it from life on land—specifically, from a generalized "humanity." In Chapter Five, I asked what forces brought "Sharkcalling Culture" into view at a certain moment in New Ireland. By beginning with an ethnographic description of the 2016 Kontu/Tembin Sharkcalling Festival and tracing a genealogical history of "New Ireland Tourism" and the practice of sharkcalling, I have shown who and what forces made possible the

festival, and made possible the shortsighted conclusion that it was a failure. "Sharkcalling Culture" is not "sharkcalling", but it is the expression of sharkcalling given by sharkcallers to a world that has been produced as different through national, provincial, and local tourism initiatives.

Along these convergent roads, Solwara 1 has been shaped by a series of interactions that have taken place in (and made place out of) oceanographic research vessels, corporate board rooms, village gatherings, and in hydrothermal vent fields deep under the sea. Having finally emerged in New Ireland, it then withdrew back over the horizon—back to the boardrooms, the trading floors, and the scientific laboratories where it was reformed, refined, and finally re-presented to those in the Bismarck Archipelago. From its initial inception in the 1990s, it has gone and come back again and again—something I experienced through my own rhythm of arrival, departure, and return to Tembin Village.

During my first visit to the village in 2013, Solwara 1 was on everyone's mind. But then, because of shifts in global metal markets, a prolonged dispute with Papua New Guinea's national government, and factors beyond my knowledge, it seemed to disappear for several years. When I returned in 2015, the mining project was on again. Nautilus had restored an office in New Ireland's provincial capital of Kavieng. Representatives began making visits in their new Toyota Land Cruiser up and down the west coast of the island, staying along the way in places like Tembin. Bearing some resemblance to what it once was, and bearing the difference aggregated in its absence, Solwara 1 had returned. Tembin, which had gone nowhere in the interim, but had been distant from the mining company, had changed too. In a two-year period, it had lost its former status as part of Solwara 1's "Coastal Impact Area." What was now, in mining company

literature, called the project's "Coastal Area of Benefit" had shrunk to a few smaller villages south of Tembin and geographically closest to the SuSu Knolls.

It has been through this rhythm of presence and absence, and through concurrent, if discordant, rhythms of anti-mining activists and tourists, that Solwara 1 has become a part of life in Tembin. Likewise, it is through these rhythms that Tembin has become a part of life for Solwara 1, and by extension, for the mining company, the anti-mining activists, and the anthropologists that have accompanied its arrival in the Bismarck Archipelago. Examining these convergent histories as I have presented them, it becomes clear that certain relations, each with their own duration and intensity, have been concealed through my own omission. Simply put, I have left out elements of these histories which were either invisible to me or beyond the scope of this dissertation. In ethico-epistemological terms, I have not yet "killed" Solwara 1, nor have I allowed it to live: I have not, through writing about it, had the power to do either. Solwara 1 remains attractive to me, to those in New Ireland, and to many more people throughout the world, partly because it continues to succeed in concealing something of its origin story. But more importantly, it continues to live because it conceals something of its future.

Neither independent scientists nor regulators nor Nautilus representatives know what will happen when the company deploys its three massive submersible machines to the SuSu Knolls and begins the work of extraction. Nautilus, in its Environmental Impact Statement, acknowledges gaps in its knowledge of such impacts, but creatively spins this lack of information as a potential benefit of the project. Recall their statement that "the offshore location of the Project has necessarily shifted the primary consultative focus from landowner issues—as there are no direct impacts—to international scientific input" (NMNL 2008:21). The

company, its hired scientists, and independent researchers are waiting to see what happens when industrial noise and sediment plumes enter the dynamic hydrosphere of the Bismarck Sea.

Scientists have been consulted to guide the company's mitigation measures, but those same scientists are consulting with Nautilus to determine how to act with regard to future seafloor massive sulfide (SMS) mines. Solwara 1 is concealing elements of its past nurture as well as elements of its future sociability. What kinds of beings or ways of being will it nurture when it begins? Furthermore, what kinds of being or ways of being will deep seabed mining nurture when it moves throughout the Bismarck Sea, then westward to the Solomon Islands, Tonga, and beyond? To appropriate the language of anti-mining activist Helen Rosenbaum (2011), Solwara 1 has emerged as a point of interest to us simply because it is "out of our depth." It is *not* us (because we know little about it), and it is exactly that difference which draws our attention toward it. At the most basic level, this is the work of expression that is partial and thus generative of new expressions. It is the work of moving, of maintaining relations, and establishing new ones.

Should Solwara 1 fail to conceal these embodiments of distant nurtural histories, or in other words, should it tell us everything of where it has been, it (as well as our relationship) would suffer an epistemic death. Should any one person know the entirety of Solwara 1's history; should any one person share its history as their own, the question *U pas Mia?* would become irrelevant. Should difference be killed, so too would the potential for new social configurations, and thus, new ways of knowing and acting on the environment.

In part, its social life has been enabled by past spatial legislation that established the Bismarck Sea as "land" and the resources within that land as the property of the State. But in New Ireland itself, statements of doubt or dissent toward the project were sometimes cited by

white expatriates as evidence of greed: "They [locals on the west coast] say it is not good because they are not getting enough of it." The more I asked locals about Solwara 1, and the more I began to see about it on the social media pages of local and regional environmentalist organizations, the more I saw evidence that it was the *experimental nature* of the mine which was not good. This, of course, is not to discredit empirical and intuitive assertions of the danger of the project to local lives and livelihoods. But it did signal attention toward the project's uncertain future. Perhaps the most seductive thing about Solwara 1, the reason it remains lively and attractive (as both a danger and a promise), is simply because it has been called "the first of its kind." It is the "world's first deep seabed mine"—everybody knows this, and consequently, everyone continues to look at it to one day bear witness to how good or not good it will be. Solwara 1 has, and continues to, engender attention and action in Mandak-speaking New Irelanders, in white expatriates, in legislators, and in an increasing number of anti-mining organizations and environmentalist organizations who have added anti-DSM action to their portfolio. In concealing its future, Solwara 1 has acted as Daniel often did when he was going about village business, or as I did when my research shifted away from my original plan into unknowable territory. In remaining partly elusive, it has secured and maintained interest in it, and thus, the kind of material and affective contributions necessary to remain socially viable, which is to say, alive.

By "alive," I mean Solwara 1 is epistemically alive. To draw again on a musical metaphor, the curtains have not yet closed, in spite of its many intermissions. Solwara 1 is alive to its many interlocutors in the sense that it maintains their attention or anticipation, and maintains an exchange of information, material, and images with them. There is of course a danger here that this deployment of "life" may be confused with life in a liberal, humanitarian sense—as a right

that is basically human, that is increasingly extended to animals, but that should not be extended to something like Solwara 1 at the risk of dissolving the ethico-political potency of that term. However, if we assume, as I have here, that all social lives become intelligible as such through movement across a terrain of relations that is both prior and distant to the present encounter, then life itself may be seen as the result of productive labor by humans, non-humans, places, ideas, and above all, to the one Mandak speakers refer to as *Moroa* (God). The value of any object may then be understood to be relative to the conditions of their own production—to the particularities of their origin, not as an abstract species or commodities or forms-of-difference, but as difference that, when encountered by another in a particular place and moment, engenders interest, produces new relations, produces time as the duration of those relations, and thus produces a retroactively conceivable space—an environment.

That environment, combined with their own ingenuity, has afforded the sharkcallers an opportunity to reassert relationality with marine nature through visible culture at a time when such expression is demanded by environmentalists, mining company representatives, and the occasional tourist who finds their way to the west coast of New Ireland. In doing so, the sharkcallers and their families have masterfully maintained the conditions of possibility of relations with marine nature—some of which are secret and should not be revealed publicly, and others which have been discredited through liberal political distinctions (and indeed confluences) of land and sea, nature and culture, place and history.

It is important here to reiterate the point that no rhythms can, or should, be essentialized as "capitalist," "conservationist," "tourist," or "indigenous." This is not only because doing so would require (and reveal) an epistemological transcendence of the one doing the naming, but also because it is impossible to conceive of these rhythms, or any rhythms for that matter, as

objective realities. Rhythms are real only insofar as they express something of themselves to an audience, who upon hearing them, experience affective change—at minimum, a sense of anticipation that all rhythms bring. The reality of rhythms is grounded in the experience of the one "hearing" them, which in this case has been me. Heard by others (who are intelligible as such because they are situated differently from me), rhythms are undoubtedly different. They are truths, in other words, but multiply conceived. They refuse generalization, but this does not mean they are unable to signify actionable truths about particular environments. One can never mark a rhythm, but can indeed analyze and act upon the conditions of possibility of its composition. It is here that sovereignty becomes relevant.

Sovereignty at Sea

In the first chapter, I explained why it was necessary to create Presence as a theoretical and practicable malangan when of course a thrilling ethnography could be written about sharkcalling, seabed mining, or what I initially understood to be a conflict between sharkcallers and seabed miners. The reason is clear: In spite of all local, regional, and global resistance to the Solwara 1 project, which at the time of writing has increased exponentially, the project, and SMS mining throughout the Pacific, still seems "inevitable." The very presence of the mining equipment on Papua New Guinean ground seems to support this, as do quarterly reports to Nautilus shareholders. What seems to also support this is an exponential growth in the amount of consumer electronics being produced, consumed, and discarded today—all of which are built of copper and various other base and rare-earth metals which can be found in the deep sea. Assuming, as I do, that Mandak speakers and others in the Bismarck Archipelago have inhabited the land and waters of the Bismarck Archipelago for at least forty thousand years, and have only recently been discursively alienated from newly partitioned areas of the Bismarck Sea through

national and international political maneuvers, the emergence of the deep seabed mining as a highly experimental form of development certainly does seem rushed. It seems disingenuous. It seems, as locals say, "not good."

Here, I will venture an explanation of why I believe that to be so. By reading both primary and secondary sources of information on customary marine tenure in Melanesia through the model of Presence, I will attempt to give rhythmanalysis its own teeth—to bite back against what are neocolonial and certainly racist narratives of oceanic remoteness and native greed by showing that sovereignty is not only a question of permanent occupation and rule, but of timing and the ability to modulate the entry of objects and information into the world. Sovereignty, in other words, is a question of sounding: of sending away, calling back, and of marking emergences in time and place by giving them a name.

During the early days of my fieldwork in New Ireland, a white expatriate who had lived on the island for some time outlined what he thought to be, but at the time was not, my project. "So, you're studying sea tenure?" he asked. "Ah…you're wasting your time. It doesn't exist." I focus on this statement in particular, not only because it was presented so abruptly and desires a retort, but because it mirrors the State's position toward indigenous sea tenure in the area that has become EL1196. This statement arises from a misreading of earlier scholarship on customary marine tenure. I call it a misreading for two reasons: First, because it fails to consider the temporal dimensions of marine tenure, which are apparent in that scholarship; and second, because it invokes the problematic idea of "the tragedy of the commons" (see below) to erase historical relations between indigenous New Irelanders and the species and spaces of the Bismarck Sea. To understand this error for what it is, and to appreciate the "teeth" it has had in

debates over resource rights and ownership in Papua Guinea, I turn now to earlier writings on customary marine tenure.

In *Guardians of Marovo Lagoon* (1996), anthropologist Edvard Hviding draws on Giddens (1984) to describe customary marine tenure in terms that are distinctly temporal but have consequences for spatial practices and representations: "Marine tenure is something that happens," Hviding writes, "rather than merely *is*—a continuous, adaptive process rather than a formalized, static structure, and inextricably tied to long- and short-term historical transformations in time and space" (Hviding 1996:361). Hviding then cautions against what we may call the spatial tendency of models—the ease with which they may be inscribed onto space:

> The empirical complexity of marine tenure in Marovo cannot be grasped, or delimited, by a formalized structural model. Such models operate on a very high level of abstraction from empirical reality and tend to view 'tenure' in a sectored manner, as a distinct sociocultural form that is specialized to deal with immediate matters of resource management. The required levels of abstraction and vectorizing are overly generalistic, and insensitive to the local-level spatiotemporal variation that characterizes marine tenure throughout Marovo. Models formulated along the lines obscure the diverse day-to-day occurrences in people-environment relations, and downplay the inextricable interrelations of these realms of practice with other contexts. [Hviding 1996:361]

As Scott and Mulrennan (1999) have also argued, "the social contestation of property definition and demarcation is continual, so any attempt to represent or codify property rights in a fixed or formal fashion involves a certain level of abstraction and reification" (Scott and Mulrennan 1999:148). Codification is problematic for several reasons. First, it freezes what are continual, emplaced processes—transactive relations between people, spaces, species, and sometimes spirits that each have their own histories, presents, and futures— and in doing so, "packages" them for travel elsewhere, concealing the actual relationships that make such forms of organization, ownership, and regulation possible. Second, an overemphasis on space often

results in the ignorance of time—specifically of the temporal agency that makes such continuous relations occur in the first place, and endure in the long run.

This relational particularity can be seen in Carrier's (1990) description of marine tenure in Ponam at the northern edge of the Bismarck Sea, which was both particular to the place and to the people and species involved. "One significant aspect of Melanesian ownership," he writes, "is that property in natural resources was owned not by individuals but by clans, lineages, or other kinship-based groups" (Carrier 1990:146). One person might be chosen to manage relationships between humans and marine species, but their position as manager did not place them or anyone else above or outside of these relationships, or, for that matter, at the top of any conceived model. Furthermore, Carrier shows that for Ponam Islanders, "the orientation to marine life was in terms of the islander's requirements for physical and social survival rather than in terms of the various relationships which may exist within the realm of marine life itself. Consequently, Ponams saw each sort of fish existing more or less independently rather than as being related to each other as part of a functionally integrated whole. The observed fact that two different sorts of things live in the same neighborhood did not necessarily lead to interest in their relationships" (Carrier 1990:152).

Among Mandak-speaking sharkcallers with whom I have spent time, relations with sea life are articulated in similar terms. One day during the January monsoon when fishing and sharkcalling were impossible, but the sea with its wind and driven spray was very much a part of village life, I sat on the verandah of the guesthouse and asked Conrad to list as many fish as he knew. I opened my notebook, and he stared out at the waves breaking on the reef. And then he began.

> Lein. Laxambambua. Loxorontun. Loxorobam. Loxoronkus bamaga. Loxoronkus mamaga. Lamarun piro. Lamarun mamaga. Lapbilap. Laxarem. Lombuxa.

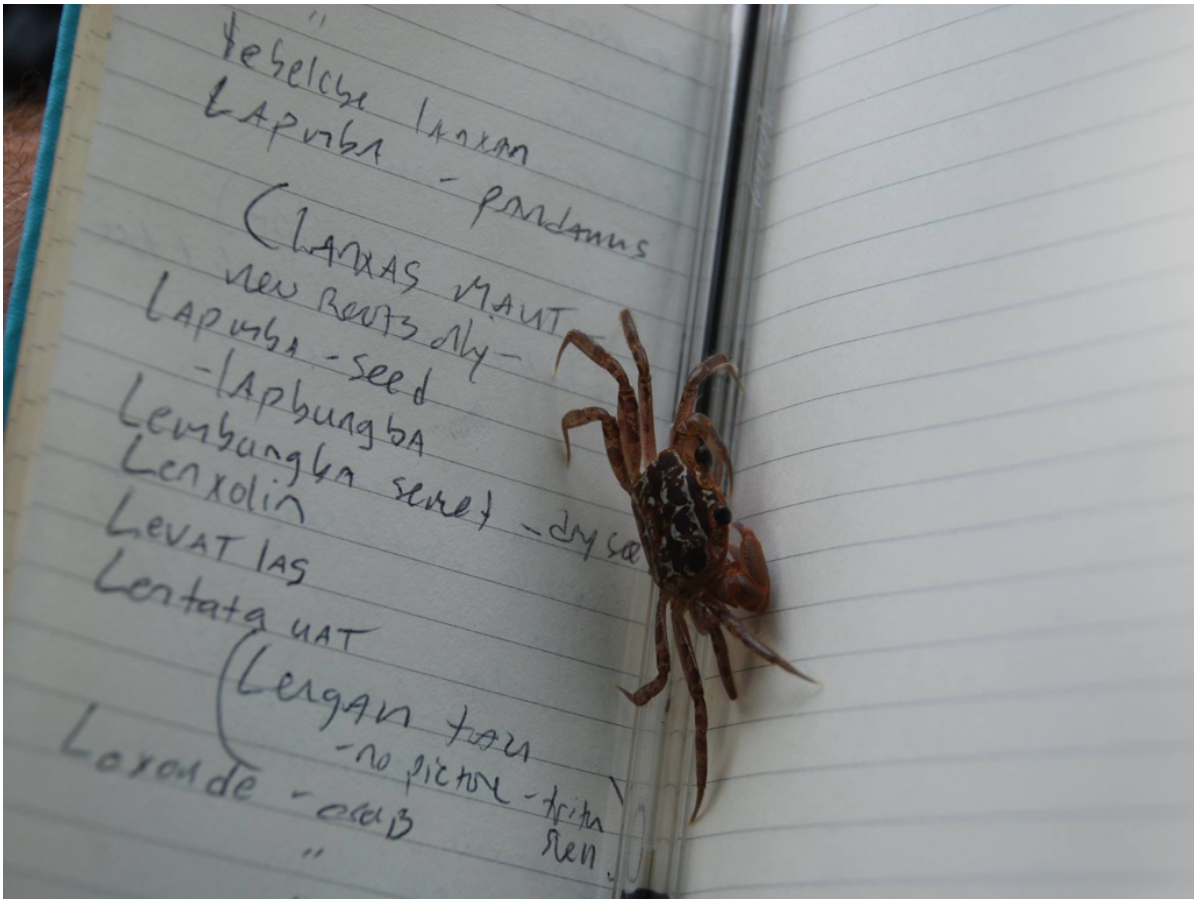

Figure 19: Fieldnotes

In the time it took a rain squall to walk its way from the horizon to the shore, he had listed a hundred and nine different fish by name.

In the next few days, he and I showed this list to a select few others—my sister, three brothers, father, and mother. That exercise, which proved to be as productive as it was fraught with rivalry, resulted in dozens more "family" names and subtypes, each distinguishable by color, by shape, by "work" (disposition), and by place—where they are typically encountered in the sea.

Another time, earlier in my research, we did an exercise in shark taxonomy. But that time, I showed Conrad and others pictures of sharks from a CSIRO species identification chart and asked them to name each one. This proved more difficult. The list we produced, which totaled

seventeen sharks, barely corresponded to the pictured animals. Rather than equating each form with a name, I asked them to list names, and then distinguish between each one. What resulted was again a description of each shark's "work". *Lavasovu* was "the big one" and corresponded to the picture of the Great White Shark (*Carcharhinus carcharodon*). But so too did *Lesinabe,* which "kills man." Others "sleep in the sand," or "sleep in the cave and the sand." Others still were called *masalai* sharks—which, I learned, were associated with a particular clan and a particular place, typically residing uneasily at the edge of a boundary between their territory and that of an adjacent clan. *Masalai* exemplify the kinds of connections Carrier described among the Ponam. Each has a name, a story which is closely guarded, and can be encountered in daily life or brought into existence through ritual magic and practical action. Many times, I was told that if a sharkcaller should like to know a certain space or boundary, he can drop a stone from their canoe to the seafloor. Regardless of depth, should a particular *masalai* shark ascend toward their canoe, they will know they are at that boundary and act accordingly. Sharkcallers carry stones in their canoes for this and other purposes—a fact alone that discredits any attempts to spatially segregate indigenous New Irelanders from "*biksolwara*" (TP: the big/deep ocean) and its abyssal bottom.

To say, then, that sea tenure doesn't exist in the Bismarck Archipelago is to deny these historical relations between indigenous peoples and marine species and spaces. Such denial is based not only on a denial of history and temporal agency, but on support of the problematic and relatively recent idea of "the tragedy of the commons" (Hardin 1968). As Bonnie McCay and James Acheson reveal in *The Question of the Commons* (1990) "The idea that common property causes trouble is an old and persistent part of Western culture" (McCay and Acheson 1990:4). They trace this idea back to a nineteenth-century debate which saw an unlikely but resonant

analogy drawn between a calf and a human child. That analogy, presented by William Lloyd (1977[1833]), suggested that the calf, armed "with a set of teeth and the ability to graze" and the child, armed with "a pair of hands competent to labor" presented similar threats to their respective commons: the calf to the open pasture, and the child, eventually, to the open labor market. With rights in place that enabled unrestricted entry into each common, resources would soon be depleted and starvation and misery would result. Add to this capitalization and external incentives, and the tragedy worsens. Hardin then applied the economic idea of marginal utility to Lloyd's model of the English commons, and suggested that the individual rancher (or fisher), in spite of their knowledge that the addition of another animal to the pasture or bait in the water will exacerbate resource depletion, will do so anyway because the cost of such an addition will be shared by the larger group while the profit will be theirs alone. Citing Hardin (1968:1244), McCay and Acheson summarize this tragedy: "Each man is locked into a system that compels him to increase his herd without limit—in a world that is limited…Freedom in a commons brings ruin for all" (McCay and Acheson 1990:4).

One solution to this problem was privatization. Another was regulation of access, behavior, and technology (gear), all of which have been attempted in attempts to resolve tragedies within common fishing areas. But what about places like the west coast of New Ireland, where traditional management regimes have proven successful in solving or avoiding shortages, and where the reefs are more pristine than anywhere else I have ever been? Considering that people have lived here for over forty thousand years, that situation seems anything but tragic.

It is wrong to conceive of the Bismarck Sea as a national commons in the first place. When the sea is cast as "open" and thus "common," those at its edges find themselves at the

heart of a tragedy that exists only in narrative. But in reality, they are neither the mindlessly munching calves nor the self-perpetuating children. They are the custodians of their own nurtural histories.

Today in the archipelagic waters of Melanesia, it is perhaps too easy to confuse customary marine tenure with sovereignty, for both exist among the same spaces. If marine tenure involves a set of overlapping practices and rights, today it is clear that the State of Papua New Guinea is folded into that system, as are a fleet of nationalized longliners, foreign tuna boats, the wayward Vietnamese "blue boat," research vessels, and now mining companies, all of whom create and maintain relations with marine species, base and precious metals, and coastal peoples for the interest of their respective organizations. As Macintyre and Foale (2007) have noted, new kinds of property relations in PNG have emerged with new developments, and no longer can they be defined as exclusively Western or indigenous. First- or second-hand experience with these changing relations might give the impression that customary marine tenure no longer exists in a prior state of purity; that it is merely reactive, as I have heard said, and oriented toward short-term gains. But that appearance belies a temporality—not only the fact that such property relations are historically durable, but that they come about and are maintained through temporal interventions—through movement through space and time and the instances of presence achieved through that movement, and the technique of "sounding" through which the other—be it a shark, a mumu, or a mine company representative are asked where they have been, and asked to tell their origin story (which they do only ever in part), and in doing so, express something of their environment—the time and space to which they owe their very existence.

Amid this overlap, Solwara 1 persists. Indigenous peoples of the Bismarck Archipelago are still seen as "greedy" with regard to a preconceived marine commons. If sovereignty is

measured simply by its effects, it seems to be in the hands of the national government alone, who, in being a signatory to UNCLOS, assumed territorial control over the archipelagic waters of much of the Bismarck Sea. A reason for this may be found in the distinction between land and sea that is written into PNG law. In practice, customary marine tenure in PNG is very similar to customary land tenure. I mentioned previously that the sea in New Ireland is a source and sink of social relations, a term West (2006) uses to describe the forest on behalf of her Gimi-speaking relatives. The kinds of continuous transactional relations that occur among and between clans, species, spirits, and places occur on land as they do at sea. Cosmologically, the only difference I have noticed is that the sea is described by Mandak speakers in New Ireland as lacking "roads," which in context means the sea lacks the restrictiveness roads place on mobility.

As discussed in Chapter One, while the two spaces might be practically similar as *environments*, there is a legal difference. Ninety-seven percent of the land, or "ground" in Papua New Guinea is owned by customary land owners, not the State. This is a fact recognized in the nation's constitution, one of the many reasons that make it unique among postcolonial nations. While the seabed of the prospective Solwara 1 project is technically defined as "land" in the PNG Mining Act of 1992, because that land lies outside of the twelve-mile limit of territorial waters, it is owned entirely by the State. In ratifying UNCLOS, PNG became sovereign of its seas, immediately rendering myriad sea areas and seabed resources as national property at the expense of those with enduring connections to these spaces. An agreement originally intended to allow nations to restrict foreign fishing pressure and resource exploitation has, in practice, restricted the ways in which indigenous people are seen to maintain social and epistemic connections with the sea.

Conceiving of Mandak relations to the sea in terms of customary land or marine tenure is not legally sufficient to stop seabed resource extraction from happening. In spite of such tenure, the Solwara 1 is progressing, because the State, as mentioned, is sovereign of the area in question. However, there is room here for a redefinition of sovereignty for means of sovereignty itself—one that reads elements of customary marine tenure in Melanesia (specifically the temporal agency I have described above) through alternative definitions of sovereignty that have emerged in the wider Pacific region, in Australia, and in North America. In such scholarship, sovereignty exceeds the binaristic restrictions implied in the politics of formal ownership and rule while never straying from the fact that *land is life*.

Aileen Moreton-Robinson, in the edited volume *Sovereign Subjects* (2007), draws together multiple visions of sovereignty from multiple indigenous authors, all of whom in some way "examine what the status of Indigenous people can be in a state founded on invasion" (Stratton 2007:ix). Writing to place the sovereign position of her coauthors "on the record," Moreton-Robinson looks forward to "a future in which Indigenous sovereignty is formally recognized and we are no longer treated as trespassers on our own lands" (Moreton-Robinson 2007:xi). Yet she and her coauthors write with due skepticism that that change will come from the state itself. With this acknowledged, the authors of the volume collectively reappropriate sovereignty and relocate it, situating "the Indigenous subject/knower in the everyday actualities of their sovereignty in their relationships with other Indigenous peoples and communities."

> Our sovereignty is embodied; it is ontological (our being) and epistemological (our way of knowing), and it is grounded within complex relations derived from the intersubstantiation of ancestral beings, humans and land. In this sense, our sovereignty is carried by the body and differs from Western constructions of sovereignty, which are predicated on the social contract model, the idea of unified supreme authority, territorial integrity and individual rights. [Moreton-Robinson 2007:3]

Within the volume, Wendy Brady refines this idea of embodied sovereignty by considering her own "duality of being." Citing McRae et al. (1997), she writes, "As an Aboriginal person, my life is lived on two levels in relation to sovereignty: one is my *existence* within a nation (Australia) that regards itself as a sovereign state, and the other is as a *functioning* sovereign Indigenous being" (Brady 2007:140). Looking to Mansell's (2003:5) definition of sovereignty as "the right of authority in a people to control their territory, and those in it," Brady demonstrates how "sovereignty continues even when a people is prevented from exercising it" (Brady 2007:157).

That continuation, much like the continuation of transactional relations between fishers in Papua New Guinea and marine species, is possible to the extent that it is situated in the body of practitioners. Moving from Australia into the Pacific, we see this distinction between State sovereignty and multiple states of sovereignty in Ty Tengan's description of the Hale Mua men's movement in Hawai'i, in which the path forward for the movement was "intentionally ambiguous," wherein "no political goals are set, and no positions on sovereignty are taken," yet succeeded in its "goal of providing [Kanaka Maoli] men with a space to learn, teach, practice, experience, and perform a Maoli, or Real, identity as Hawaiian men" (Tengan 2008:58). The movement, Tengan argues, was formed in response to a perception that Hawaiian women were doing the work of decolonization (see Trask 1984:8) while men were collaborating with the State through their own occupational choices, or otherwise obfuscating the anticolonial efforts of women through misogynistic gender practices. In situating decolonial practice in the bodies of himself and his fellow participants without making overarching claims to sovereignty, Tengan creates a space for Kanaka Maoli masculinity that is compatible with indigenous Hawaiian efforts to maintain a nation within a nation.

Audra Simpson, writing in a North American context, refers to this as "nested sovereignty" in which indigenous sovereignty among Mohawks of Kahnawà:ke does not negate the sovereignty of the Canadian state, nor does the latter negate the former. Rather, the two "stand in terrific tension and pose serious jurisdictional and normative challenges to each other" (Simpson 2014:10). This tension is often experienced in moments of attempted recognition, when at border crossings or in questions of tribal membership, individuals are made to fit within preconceived logical and political structures. Simpson's response to such demands is to formulate a theory of refusal, which I read as tactical as much as it is theoretical—a means of what Alfred (2005:59) calls "creative contention" in which the moving body itself becomes a critique of the political border.

Refusal, as a tactic, is useful in moments of presentation and representation, which not only occur in response to external demands (for intelligibility, or on the other hand, for recognition), but in moments when a particular person or group of persons desires to give something of themselves to another. In other words, it happens in moments of presence, of union and reunion in which one is asked by the other to tell something of themselves: to say where they are from, who they are related to, and where they have been. That other who is asking the questions or giving the answers may be a fellow indigenous person, or a mining company representative, or an anthropologist. In each and every meeting, what is required of each person is "an ethnographic calculus of what you need to know and what I refuse to write [or speak]" (Simpson 2014:105). Each presence is ethnographic as much as it is *ecographic*, for it inscribes texture on the past and distant relations in which that other person has taken part.

Conclusion

The descriptions of internal and/or nested sovereignty I have cited here along with their practical (and/or tactical) manifestations make possible something that customary marine tenure alone does not. Not only in Papua New Guinea, but in the Pacific at large, a dominant percentage of oceanic and seabed resources are wrapped into internal or archipelagic seas and Exclusive Economic Zones. That is not changing any time soon. But what is also happening lately are demands for Pacific peoples to represent their relations with the ocean in ways that might overshadow the instrumentality and particularity of these relations. A recent example of this can be seen in Disney's *Moana* (2016), in which what appears to be a culturally altruistic gesture on the part of the media conglomerate veils multiple layers of dispossession. As Vicente Diaz argues, the Western desire for inspirational Pacific narratives, when furnished through Disney's expressed desire for authentic cultural alterity, effectively "whitewashes" historical and present-day colonialist violence in the Pacific. The "raw material" appropriated by the films white male producers from Pacific peoples is sourced through Disney's own formulation of a "transpacific village comprised of the region's cultural experts, talent, traditional chiefs, and especially 'academic' experts" (Diaz 2016)—a move that itself erases myriad cultural and historical differences among Pacific Islanders for the effect of authenticity.

Today, an internet search for the meaning of the word "Moana" will unfortunately *not* lead one toward the theoretical contributions of Pacific scholars Māhina (1993, 2004, 2010), Ka'ili (2005, 2017) among many others, but rather—and I am not joking— to a series of baby-naming websites for Disney fans of child-bearing age. This is the kind of representational erasure that, once it gains teeth, makes possible the physical erasure of specific indigenous presences from

specific lands and seas, which by extension makes possible the erasure of the submarine seamounts by the iron teeth of a submersible excavator.

In Chapter Five I discussed the kinds of representational demands that are being experienced by the sharkcallers and their families in Tembin Village. Having had the deep sea removed from their sovereign control through national political maneuvers, the sharkcallers are now being asked by documentarians, anti-mining activists, and the occasional foreign tourist to articulate cultural connections to the sea in a way that fits within the dominant imposition of state sovereignty. Through their own ingenuity, they have managed to do so by taking ownership, first of a "Sharkcalling Culture," and through (or inside) that, of the ways they are understood to relate to marine life.

Of course, there is a condition to this maneuvering: to maintain this publicly visible form of Sharkcalling Culture, the shark must not be killed. When, during the Kontu/Tembin Sharkcalling Festival, the sharks themselves refused to be present, the festival itself was deemed a failure. But this narrative was quickly overcome through another tactic. By taking ownership of tourism itself, the sharkcallers made a new audience for their practice among their fellow New Irelanders, which effectively allowed for the return of the festival in years to come. Sharkcalling Culture, in being sent away, was encouraged to re-present itself.

All of this occurred through acts of speech and nurture by Mandak men and women. In Tembin, I have shown how sovereignty is not only about ruling a piece of space. Rather, it is about the knowledge and the wisdom to speak *for* a clan and the ground (be it aquatic or terrestrial) to which one is inextricably tied. Moreover, it is the ability to *speak into existence* that which has arrived from the beyond: to produce "time-marks" (Ka'ili 2017), and in doing so, conjure relational space in such a way that it too may emerge into the social.

At the most basic level, this is observable in the practice of naming, which as I have demonstrated in the story of my taxonomy lesson, involves the signification of a particular disposition rather than the abstract marking of form. The Mandak name *Lukamu,* for instance, is highly revered, and has been given to a man in Tembin "who fills up his canoe with sharks." The female name *Akismamau* has been given to a woman "who sits under the *mamau* tree"—a disposition of the highest praise that exceeds the possibility of translation. Returning to Presence and to the musical analogies that have informed much of this dissertation, naming is a form of attentiveness that transcends individuality, moving beyond the closed boundaries of the singular participant listener to invite a collective listening—one that may be enjoyed, by its eventual if not immediate benefits, by the entire clan. It is to this end that I have named Solwara 1—so that my clan and others may continue to know the sea and other spaces beyond, before, and within.

Figure 20: Daniel

[1] I borrow this phrase from Deluze and Guattari (1987)

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APPENDIX: *THE MALANGAN MUMU*

Below is an expression of the work and timing involved in bringing a particular malangan mumu (and others with it) to life. Its presence in this dissertation is intended to express not only the exceptional amount of human and nonhuman work that go into such productions, but also the timing of my own presence and direction of my attention. Far more was happening behind me and further away. My camera (and its time-stamp feature) help to demonstrate how a nurtural history is not an abstract history or "environment," but is relative to specific and successive moments of presence.

Clock Time	**Major Event**	**Materials/Actors Present** in Frame
3:29pm (Day 1)	Mumu 1 treebark assembled	Tree bark: 3 strips (15inx20ft); green leaves; cut large bamboo; 20men; supple vine; supple tree limbs (2in dia.)
3:30pm	Taro already assembled together in baskets	13 temp. Baskets (palm); for taro, (23/basket=299 taro); 11 women on periphery under tree after working
3:31pm	Taro dumped into readied bark + leaf mumu	Men (15)
3:32pm	Bark wrapped around taro (taro only in this one)	Men (16) and women observing critically (8)
3:34pm	Mumu cinched tight with vines	Men seated (10), observing (6); women observing (5); children (6)
3:44pm	Mumu cinched complete	Men resting
3:45pm	Mumu pierced for vent	Men (5); bushknives (3)
3:55pm	Pig bed has been assembled (photo); taro has been assembled on taro bed (which was completed earlier)	Round tree logs; red store paint; white store paint; gorgor
4:07pm	Firewood has been assembled	Firewood: some 3in diameter; others 7in diameter; others 1in diameter

4:07pm	Bukbuk around grave has been assembled	Palm fronds (dry and mostly green); bamboo; blue plastic tarp; tambu mark (gorgor) tied to tree and stuck into periphery of pig bed.
5:32pm	I notice other bed close to taro bed with leaf bundles	Banana leaves x 6 long bundles
5:32pm	Taro bed detail	Taro (18 bundles x 12 small taro each—smaller than mumu 1)=216 taro
5:38pm	Pig bed detail	12 horizontal logs; 6 kabai; 2 angled step logs; 3 horizontal support logs; red 'x' painted on ends of 6 of 12 horizontals; kabai and supports each with collars
9:04am (Day 2)	Singed raw pork tossed on top gorgor mat, separate from raw unsinged pork; south mumu has been lit	Gorgor, pork; stick roof supports; tin roof panels (3); large mumu stones;
9:17am	Tapioc and kaukau placed on banana leaves; atop pandanus (Mumu 2). hot stones added in the mix	Hot large stones; tapioc (35 in 4 temp. Baskets); kaukau (12); 13 men; split bamboo 'tongs'; supple vines
9:18am	Singed pork chunks placed on gorgor mat (Mumu 3); pandanus gathered by me and others	5 men (mostly young), multiple pigs, small dog; pandanus strips readied; Daniel present in grubby clothes, supervising. katekit same; supple but thick black vines; support branches; 4 baskets tapioc
9:21am	Mumu 2 cinched together with vines	14 men and boys; all above.
9:24am	Medium sized black and white pig carried to mumu area; bombom readied; young boys look on	Pig; 4 men; 8 young boys; bamboo holder; bushknives; bombom for singing it
9:26am	Small 'sausage' hung over hot fire from heating stones on south mumu	Narrow stick; intestine of pig; stones; fire; young boys to watch it
9:28am	Bombom lit	Same as above
9:35am	Bombom finished; pig carried to sea and hair scraped off	Knife; two men to carry pig to beach; one to scrape; bamboo afloat
9:38am	Butchering of pig begins with legs	Three men; then more and boys; narrow bushknives; small knife

9:40am	Mumu 3 wrapped in pandanus; super hot	Pandanus; 9 men; lots of blood and smoke
9:42am	Young women carry pig entrails to hauskuk	Plastic basin, 2 women; pig guts
9:46am	Mumu 3 cinched with vines; men rest	Thinner Vines than mumu 2; men; pandanus strips
9:49am	Mumu 4 assembled with garden food and hot stones; boys rushing around from fire to site	Tree bark, large; unknown broad green leaves; 11 men (Solon too); tapioc and kaukau; hot stones (aflame); split log tongs; kaukau mostly (60+)
9:57am	Pig from sea brought to site; placed on gorgor mat; and divided up carefully with intro cuts;	Daniel; Conrad; katekit; elder men and young boys; pig; gorgor; knife
10:00am	Hot stone placed inside pig carcass to singe blood	Stone; tree-tongs; same as above; considerable white smoke
10:02am	Conrad moves atop taro bed; works magic	Conrad; taro on bed; one newly big-man; bukbuk
10:02am	Conrad hands down first bundle of taro; taro touch ground and then carried to central square; taro then collected in temp. Baskets and carried by adolescent boys and girls, and women to the square	Same as above; Joe's wife arrives to take bundles; taro on ground; adolescent boys and girls; humor ensues; tree bark rolls visible in background; baskets (more durable ones); buai grove in background
10:10am	Taro dispersal finished; Conrad steps down off bed	Same; but 20-something man is on bed now looking for daka in trees
10:12am	Mumu 4 (large) is visible in tree bark and carried to mumu	Mumu 4; 6 men to carry; tree supports; boys
10:12am	Taro is assembled on ground in square	18 or so taro bundles; 6 women so far; blu plastic tarp; yellow tarp; three plastic wash basin; Mary shrine; two dogs
10:13am	Elder women begin to skin taro with clamshells	Two women; meri blouses ; clamshells; taro; tarps; empty baskets waiting

10:17am	Mumus 2, 3, 4 assembled in south fire; Daniel watches on and points critically with furled blue umbrella	Mumus 2 & 3 in pandanus; 4 in bark; 8 boys; gorgor matting around fire; stones hot now and have been spread out flat; smoke
10:19am	North fire wood assembled, stacked, and lit; begins to smoke	14 men; large wet logs (14); bluish smoke; logs arranged in stacked square around large pile of stones
10:20am	Large coral stones carried from beach to mumus; Aruxa from beach with handful of pig guts	White coral rocks; boys perspiring now; pig guts
10:22am	South mumu rearranged so mumu 4 sits between 2 and 3; hot stones being placed atop all of it	Mumu's 2,4,3 arranged in order; stones spread out flat; gorgor; tree tongs; 13 men (mumu 2 is noxun; 3 is seaward)
10:27am	Lots of cut gorgor brought from bush and placed next to south mumu; then piled atop south mumu bundles and stones	40+ stalks of gorgor; boys arriving from wherever they were in the bush
10:32am	Women seen gathered skinning taro	20 elder women; 5 adolescent women; 4 girls; scattered rubbish from mumu assembly; house in background; pig bed and bukbuk in background right
10:33am	Large firewood logs arranged in ring around gorgor-covered south mumu pile; smoke rises through leaves	Smoke, 18 medium-large logs (8in diameter); two men digging hole with stick and metal square shovel.
11:34am	Taro has been skinned and basketed; skin is placed on pile on blue tarp; a twig of gorgor covers a few baskets only; Conrad begins to point to	Conrad; women assembled and move into background; stick taro bundled together; 11 full baskets and 1 empty(?); about 40 taro/basket = 440 total

	certain baskets with one woman?	
11:55am	Large tree bark assembled in square	Tree bark 5ft diameter; 15 ft long; 1/2in thick; green moss and white lichens on bark; 5 men with Daniel; dog; women in background resting under tree in shade
11:56am	Tree bark cut namel	Two large rolls of bark; one which has been cut 2/3 of its length; Conrad; Daniel, and 5 middle aged men
11:58am	Gorgor brought from bush and placed in flattened bark; bark has been placed atop 7 supple vines and 4-5 tree branch lifting supports	Gorgor twigs (appx 10 twigs); trees; 8 men
11:59am	Conrad present holding 4 special taro; taro arranged on gorgor inside tree bark in line parallel to shore; he is facing the sea; 5 men are vigilantly holding up the edge of this new mumu so that nothing touches the ground	4 special taro; Conrad and Daniel; 9 men
12:00pm	Taro is poured from baskets over everyones head into mumu; Conrad keeps hands on 4 special taro	Dozens of taro now; baskets; 9+ men; tree bark and gorgor
12:01pm	Gorgor twigs placed over all the taro; then bark is folded from south end to north over it all	Same as above; 1 young girl; dogs; women in distant background resting; Alfred's "Jesus Christ—eternally refreshing" hat in next photo
12:04pm	Excess/overlap bark is trimmed with knife; large vines (3in dia) are draw over top of bundle	Large vines; same as above
12:04pm	Mumu 5 cinched together with	Mumu 5 ; large vines; strongest men

	strongest men in village; knotted	
12:07pm	Women and children move toward hauskuk; crumpled wind-catcher leaf is spotted above grave; fun begins with skin taro paste (where are adolescent girls?); men resting together and watching; mumu 5 remains	Women; elder and married; young children; taro skin has been mixed with water (prob fresh water) in coconut shells and made into paste
12:14pm	Women are running around; white faced now with taro paste; some scrubbing it from their faces with fibrous baskets; dancing and drinking	Women (10 + of them); taro paste, fresh water; coconut shells and sennet-type baskets; plastic bags wrapped over their hands; rum is poured
1:40pm	Aydee 4 arrives from south into central square loaded with boys and pigs and Danny	Boys; pigs; Danny; bamboo; grey tarp over truck bed; Sun is out now fully
1:43pm	Large pig unloaded, followed by 2 more large pigs; 1 medium	Aydee 4; 9 boys; Danny, Agatha
3:08pm	South mumu unearthed; noxun bundle #2 taken on roof metal to central square	11 boys; mumu bundles and metal roofing x3
3:26pm	Mumus 2 and 3 brought to central square (not sure of large mumu 4); place is hungry/tired out	4 boys to carry each metal/mumu combo; sticks
3:45pm	Daniel stands noes of cooked mumus on ground in central square; faces the sea/mumu prep area; elder women assembled noes of	Conrad; Daniel; Aydee 4; black dog sleeping; 13 women with several pupus

	bukbuk sit and watch; Conrad rests	
3:47pm	Katekit stands nosa of mumu bundles in central square, facing noes; raises hand and says public prayer to bless food	Katekit; mumus; breadfruit leaf bundles; empty taro baskets (nice ones) adjacent to food bundles
3:51pm	Plate-leaves distributed to elder men and me; mumus cut open	Plate-leaves (breadfruit?); women all assembled in background
3:56pm	Pig is singed and cut noes of central square; two other pigs from truck remain tied up and alive a few meters away.	Driver of St. Thomas; 3 pigs (2 live tied); katekit; men; women in background periphery; large chainsaw-cut firewood in background; bushknife and small knife
4:06pm	Pig pieces are arranged on ground; daniel looks on	Pig 12 pieces so far (soccer-ball sized), Daniel, Katekit is arranging pieces; Shrine in background; group of age 20something women visible in their own group in distant background; food remains uneaten on plates; est. 170 total people present
4:55pm	I am home on verandah and resting; others still eat	Bag, camera; finished eating and tired out
4:56pm	Last photo before sunset; (sunset est: 5:30 or 6pm)	Island in distance
7:14am	New day; Daniel counting pigs in morning	6 pigs (5 large and one medium); bamboo and sticks tying them; D
7:17am	Daniel raises hand over pigs; dressed down	Daniel; 6 pigs; crowd gathered of a dozen or so; Agatha
7:21am	Pigs are killed	Pigs; men; plastic bags; tire innertube; bamboo; sticks
7:37am	Bombom is built and pigs are carried over to it	Coconut; bamboo; larger sticks; mumu in ground
9:21am	Maimai from Paneras arrives in customary dress; from Lambu (Karel) in normal dress	Maimai from Paneras and Lambu; Black laplap; red headband; greens; garden food in background; betelnut

9:22am	Katekit bows head and says prayer	Katekit; maimai from Paneras; black laplap, leaf belt; read headband; greens around neck. Katekit is dressed down in tshirt and shorts holding bushknife; women in background
11:39am	We rest in Guesthouse, then return to scene	Road; kids; Daniel in red laplap now (he has gathered greens and tanget from his hamlet gardens
11:42am	Pigs are killed	10 pigs; mostly large with one small white one
11:53am	Pigs are dead; Paneras maimai runs circles around group of pigs in counterclockwise direction with spear	Maimai; lime on chest; spear with black tip and brown shaft; headband; grass; red laplap now; grass around neck; blue wristband; women in back
11:54am	Paneras maimai stabs noxun pig with spear	Same as above
11:55am	Pigs are carried to bombom	Men; pigs; Aydee 4 in background; cooking smoke from huts
12:02pm	Conrad arrives down road dressed casually	Conrad; road
12:12pm	Pigs have all been hung on parallel bars; bombom is lit	Pigs x 10; dry coconut fronds; large sticks for pig carrying; bamboo for hanging and supports of structure; fire; young men
12:20pm	Singed pigs carried back to central square; women are readying large woven empty baskets; a taro is growing in the central square which I have just noticed	Pigs; Women; live taro; 1 dog
12:33pm	Maimais are assembled (Paneras, Daniel, Conrad) over pigs; Daniel is singing out to noes direction	2 maimais; katekit; Danny; other elders; women in shade of tree; blue pickup truck; leaves on top of pig (palm?)
12:38pm	Pigs are laid out and cut up; in Nosu/noxun line with heads all facing the matmat; one smaller pig is on leaves noes of line	10 pigs; one smaller one separate from line; boys; drunkenness; women moving around with empty baskets still; women under shade of tree; 18 men total
12:45pm	Pig guts are put into empty woven baskets	Baskets; pigs; boys on each pig now

12:46pm	Crowd gathers around concrete grave; bukbuk is broken down; prayers and heads bowed; crying from women around grave including Agatha	Grave; red, yellow, green, light blue, dark blue, red store-bought paint; lightbulbs; sago roof; women; children; younger men
12:48pm	Hollowed-out Pigs are flipped up onto pig bed; they face noes now back legs have been removed and just front legs remain; sticks are planted upright at regular intervals in central square	Bed; grave; pigs; mixed crowd has gathered; blood dripping through bed onto stony ground.
12:55pm	Agatha sits on sons grave and rests	Agatha; son Fletcher's grave; she holds a red folder
12:58pm	Pigs are arranged on bed and slapped on the face with lime	9 pigs; bed; (where is 10th pig?)
1:04pm	Daniel begins orations in central square	Daniel; leaves around back of neck; orange on chest and belly
1:06pm	Two additional pigs have been added atop 9 pigs on bed	11 pigs total; bed; Conrad
1:08pm	Danny sits on wooden bench and chews a betelnut	Danny in black laplap with leather belt; betelnut; gorgor still visible in background tambuing pig bed
1:10pm	Maimai from Paneras (MP) stands with long string of mis in two hands, and green leaves in his left hand; another mis around his neck. He is next to the singular live pig and facing the pig bed and Danny	Maimai from Paneras; two strings of 50k mis; red laplap; orange on chest; leaves on back; tree bark ties up pig to large branch; 1x4 timber holds it still
1:11pm	Same as above; he puts his left foot on	Same as above; Agatha now present; maimais; crowd gathered;

	the pig; who is now facing away from the bed with its back toward the sea and belly toward Danny;	
1:14pm	MP presents cash to Danny; then women	MP; Women in foreground now; pandanus multicolored mat
1:22pm	Group poses for photo	Daniel; Danny; Agatha; Conrad; MP; M-Kontu
1:25pm	Daniel begins oration toward Danny with Mis; he puts string of mis around Agathas (seated on bench) neck; Danny is standing nearby Daniel	Daniel; mis; women in background with sun-umbrella; bench; Agatha
1:26pm	Daniel holds up small bright yellow envelope; puts it on mat at Agatha's feet; then presents another mis on the mat	Same as above but with yellow envelope
1:47pm	Another larger pandanus mat is placed on the ground, and mis and an SP green can is placed ontop of it; drunk boy sits down at is belligerent	Mat; Danny; Daniel; Maimais; Clan in background; mis; SP can
1:52pm	Danny and Agatha both seated now on same uncolored pandanus mat; she noxun; him nosu; green baskets of bananas with bilas leaves are placed in front of each of them; family in background; Conrad presiding	Baskets; banana bundles; mat; family; Agatha and Danny

1:53pm	Women in black cuts Agatha's hair and presents Duke of York style mis	Cowrie shells, women; metal scissors with blue plastic handle; Agatha chewing banana; women and children holding DOY mis in background
1:54pm	Danny's hair is cut by same woman; coils of mis readied and placed upon each basket; Dannys having much more than Agathas and he having bag of rice and a big bowl of (corned beef?); Danny and Agatha both chew a betelnut	Same as above but now with Katekit visible in background; mis in large strings is gathered up in coils by elder man; 10kg bag of rice present; corned beef; buai
1:56pm	Karel spotted through gorgor plants outside mens house; talking with Solon and other men	Karel (in full gear with orange on face and red headband); Solen; gorgor
1:57pm	Photo of women gathered under tree with young children and pupus	About 70 people; women and children mostly but boys in background on road. Shade tree; yellow flowery shrubs alongside road; bright sun
2:00pm	Karel grasps Solon with forearm around neck and tells him something	Karel and Solon; headdress in other man's hand; gorgor plants and palms
2:03pm	MP ascends onto pig bed	MP;11 dead pigs with lime on heads
2:03pm	MP dons string of 50k mis; Solon, who is now on bed, stands with left arm over right in front of himself; Karel climbs onto bed holding basket and a red tanget	MP; Solon; pigs
2:04pm	Maimais all present on bed except Conrad; MP is holding spear downward on pig;	Maimais; tanget; spear; pigs; kapkap; pig tusks; chicken feathers; green leaves on top of spear; red laplaps on all

	Daniel is there with kapkap and pig tusk necklace; and chicken feather headdress; Karel is holding blood red tanget in air	
2:08pm	MP marks Solon with lime on chest and forehead	Same as above
2:10pm	MP gives Solon grass belt around his waist	Same as above; grass belt
2:10pm	Solon given red headband	Red headband; same as above
2:11pm	MP gives Solon chicken feather in back of headband	Chicken feather; same as above
2:12pm	MP gives Solon grass around neck	Grass necklace; same as above
2:13pm	MP gives Solon Axe in left hand and spear in right	Spear; axe with grass on it; and same as above
2:17pm	Karel gives impassioned speech with tanget-gives to Solon	Same as above; tanget
2:26pm	MP is down from bed, holding green broadleaves and mis. Solons sister is present with mis; elder women is present with cash money (she is from Paneras I think)	Two women, MP, pig bed I background; leaves; mis; money
2:31pm	Women and Danny Assemble on ground near house and facing central square and the sea; Agatha is in singsing	Headdresses on women-orange colored wreath with green grassy face covers; Danny present with orange around eyes
2:32pm	Singsing from DOY islands begins in square	20 dancers male and female; pink arm bands; grassy headdresses on women; black laplaps on men and colorful meri outfits on women; dozens assembled on sidelines all around watching (70+ noes; more under shade tree and more by house;

		est. 270ppl total); bamboo slit drums- women drumming; pigs remain on bed
2:48pm	Rain begins	Same as above; clouds and light rain
3:10pm	MP begins to flip pigs off bed, nosu first working noxun	Pigs; MP; other maimias, rain
3:11pm	Last pig is flipped off bed by MK	MP, MK, tanget; Solon in background
3:15pm	Cutting of pigs begins	Pigs, boys, rain, women nearby
3:17pm	Brown grasses are brought from mumu area to central square; along with what looks like tree bark; rain continues; Group from Paneras assembles nosu on road, approaches with truck behind them; crowd waits in square	Grasses; boys; road; rain; bark; Paneras singsing group; truck
3:23pm	Singsing group arrives in square	Singsing group with appx 50 participants (male-multiage); headdresses of sticks and smiles; 1 large slit bamboo drum in front; pale green leaves around their necks; yellow wreaths on head; red head crest assembly with 6 white dots above "smile" face; red, blue, yellow paint; green leaves; green cone on head made from what looks like woven ferns in a conical bundle; red laplaps on 11 primary dancers, all of whom are pubescent males (initiation??)
3:27pm	Dance continues in square with primary dancers and led by elder man from paneras; pork has been cut up and placed raw on stony ground. Pigs have been halved with front torso remaining intact with legs and head; dogs sniff; green baskets await	Green baskets, dog, pork in 12 pieces foreground, front of pig to the right; other pig in background with pieces next to it.

3:33pm	Dancers continue; people come up to them and laugh and disturb and buy headdresses	All above but now with their disturbers; elder dance leader is covered in pig blood; boy with "I love Jesus" beany hat is drunk as hell, dancing
4:13pm	2 mumus are present in square with kaukau coming out of one of them; pigs have been cut up and rest on ground	2 smaller mumus; pig chunks everywhere; maimais
4:13pm	Tired, I withdraw to grave	Grave with photo framed inscription. Cross painted red with "Rest" on top vertical; "In" on left crossbar; "Peace" on right side and sacred heart with barbed wire around it in center of cross. Blue lightbulbs with red collars of electrical tape and green tubes; green leafed axe placed on top/base of cross (solon was holding this); yellow base stone supporting pyramid which is dominantly light blue with red and then green edges; base is blue with red sides; green and yellow painted stones arranged across it /embedded; forming shape of "X".
4:14pm	Pork is arranged at base of vertical sticks upright in ground ; mumus are present; maimais too	Raw pork; looks like taro with skin on amid pork chunks too; katekit in foreground; large tree-bark mumu x 2 are well cooked and laid noes/nosa
4:15pm	Conrad oration	Conrad; wooden carved cross necklace; picture of mary on necklace; daniel in background looking exhausted
4:16pm	Agatha present with clipboard and folder and scribbled notes; organizing something	Agatha; clipboard; office paper; women with umbrellas
4:20pm	Largest treebark mumu with tapioc and kaukau is cut open; it sits parallel to the sea in the center square; hundreds gathered in background areas; banana leaf plates are being handed out	Mumu; treebark; tapioc; kaukau, all very well cooked;
4:23pm	Mumus are all opened up; nosu is large treebark tapioc; second is just pork;	Mumus (all); then 4 bunches of green bananas and two bunches of turned yellow/brown bananas (buried I think); food in baskets; taro by itself; all aligned perpendicular to shore but individual mumus parallel

	then treebark tapioc and pork chunks all cooked well; fourth looks to be taro	
4:29pm	Runners start distributing food-taro individuals and then other	Runner boys; massive display of food; really a spectacle
5:07pm	I am back home with family; walked home with Turisen and Gerard and food; raw pork; saw Conrad later walk home with head of pig	Gerard with headdress from Paneras; Pork; sunsetting
6:15pm	Sunset	Calm Sea; Smoke drifting out from beach over water; blood in the water moving out with tide; storm clouds on the horizon